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AMOEBIASIS AND DYSENTERY.

Amoebiasis.

MANSON-BAHR (Philip). **Recent Experiences in the Diagnosis of Liver Abscess. (From an Analysis of 40 Cases.)**—*Kenya & East African Med. Jl.* 1927. Apr. Vol. 4. No. 1. pp. 2–16. With 3 figs. [1 ref.]

——. **Practical Experiences in the Diagnosis of Liver Abscess.**—*Jl. Trop. Med. & Hyg.* 1927. Apr. 16. Vol. 30. No. 8. pp. 106–108.

The illustrious Patrick MANSON taught that the secret of success in the diagnosis of liver abscess was always to think of it. Although a "classical" case of tropical liver abscess, so well described in the text books, presents no difficulty in diagnosis, yet, the author points out, variations from the type picture are frequent in practice, and may be of such a degree as to make diagnosis very difficult. But accurate and early diagnosis is of great importance to the patient. In these two papers Dr. Manson-Bahr has fully and clearly described and discussed the variations in clinical signs, and absence of signs, of liver abscess in a recent series of 40 cases occurring in his own practice. We can give but a brief summary of the main points described by the author. 38 were men; 2 women: 37 right lobe; 3 left lobe. In these 40 cases repeated microscopic examination of faeces revealed cysts of *Entamoeba histolytica* in 57 per cent. History of previous dysentery, or intestinal disturbance, or intermittent diarrhoea, was given by most of the patients, but in 14 cases no such history was obtainable. Typically, onset is insidious; but in 3 cases it was sudden, with rigors simulating malaria. In 2 cases toxaemia was so profound that a diagnosis of enteric fever had been made. A peculiar earthy tinted facies, with emaciation, is almost pathognomonic; however, in 3 cases the patient's normal rubicund countenance persisted. Emaciation may be extreme enough to suggest malignant disease, or there may be no loss of weight. In 3 cases abscess of liver was present at the same time as the passing of bloody mucous stools containing *E. histolytica*. In 2 cases in which abscess burst through diaphragm into bronchus, there was melaena—typical black tarry stools. Although pyrexia is usual, in 2 cases there was none; exploratory aspiration alone can settle diagnosis in these latter. Night sweats very often accompany pus in liver; yet in the more chronic form

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of abscess they may not be noticeable. In the hepatic area, pain is not so frequent as is a sense of weight or uneasiness; thus the shoulder may droop on the affected side. Pain may be felt by the patient only on direct pressure on, or forcible percussion over, the anterior surface of the liver itself. Pain is common in the acute, rarer in the chronic, abscess.

Pain referred to the shoulder joint is the most striking and characteristic symptom; it is searching in character and intensified by warmth—as in bed. It usually radiates over the right shoulder; liver abscess is usually in the right hepatic lobe; but in 3 cases of left lobe abscess there was left shoulder pain. This shoulder pain is the outstanding symptom of liver abscess; its significance should never be forgotten. It may be quite transient and so must be enquired about. In one case the shoulder was thought to have been accidentally bruised and not till months later was the liver abscess discovered. Intrathoracic distress may be set up by pressure, and the heart may be displaced by large effusions. Intra-abdominal pressure may produce gastric or duodenal irritation and, if emaciation be present, dyspeptic symptoms may suggest malignant disease. With moderate sized abscesses increase of liver dullness is downwards. If the abscess lie in the upper and posterior portion of right lobe exerting pressure on diaphragm, then liver dullness is increased upwards and the heart may be displaced. One case showed no appreciable enlargement of liver, yet yielded by aspiration 25 oz. of liver pus. Pulmonary signs associated with liver abscess consist in, at first, impairment of percussion note, later signs of pneumonic consolidation, or pleural effusion. Local oedema of chest wall was present in 4—all acute cases. The site of oedema indicates direction in which the abscess is pointing. In hepatic amoebiasis, intestinal ulceration is usually situated in the caecum: sigmoidoscopy therefore reveals as a rule little evidence of ulceration. Abdominal palpation may discover thickening of bowel in the right iliac fossa; it is rare to find corresponding involvement of sigmoid flexure. From 10 to 35 thousand leucocytes per cmm. were present in 82·5 per cent. of the cases. In 7 cases there was no increase of leucocytes. By X-ray screening, doming, fixation, or diminished movement of diaphragm on affected side may be noted; but in only 7 of the 40 cases was efficient aid in diagnosis given by X-ray. In one case there was definite enlargement of the supraclavicular glands on both sides, associated with abscess in the left hepatic lobe.

Aspiration.—The characteristic chocolate-coloured pus is quite enough to establish diagnosis of amoebic abscess. In old cases the pus is thicker, of gummatous consistency and yellow. Amoebae can rarely be demonstrated in the aspirated pus. The author was able to find them in 2 cases only. Their absence—in old chronic abscesses they have died out—does not negative diagnosis of amoebic abscess. The microscopic appearance of the pus is sufficiently diagnostic. The pus cells are much disintegrated and contain many iodophilic granules. A serous effusion may be obtained (2 cases) from pleural cavity; the fluid is highly albuminous and coagulates almost spontaneously. It is sterile on culture and contains large numbers of polymorphonuclear cells. In a suspected case presence of serous fluid is confirmatory evidence of liver abscess.

Rupture of abscess—into lung with evacuation of pus through bronchus occurred in 7 cases. Such rupture is generally sudden; its dramatic course may give rise to difficulty in diagnosis; 3 cases had

been treated for varying lengths of time for pulmonary tuberculosis. In one case, rupture of abscess into lung occurred without there having been any previous signs of liver involvement. The rupture was preceded by uncontrollable hiccough.

H. M. Hanschell.

SEGURA (Gerardo). Consideraciones sobre el absceso hepático. [**Hepatic Abscess.**]—*Semana Méd.* 1927. Mar. 31. Vol. 34. No. 13 (1733). pp. 799–804.

The author describes a case of hepatic abscess which at one time had discharged into the lung and had apparently cleared up in 25 days. After an interval of two years a further abscess formed. A second case is recorded in which the patient exhibited signs and symptoms pointing to hepatitis, but no pus was found on exploratory puncture. Examination of some blood withdrawn did not reveal amoebae or their cysts [!], but the patient recovered after a course of emetine. He concludes that the intermittency of hepatitis may be due to the relative paucity of the organisms which enter from the intestine and may thus lie latent for some time ; that chocolate-coloured pus is not necessarily indicative of amoebic infection, being due merely to the presence of necrotic liver tissue ; that " presuppurative hepatitis " is not a good term, but that " diffuse partial suppurative hepatitis " is better, since the condition is characterized by fever and diffuse pain, and smears from puncture show small agglomerations of pus cells without the actual formation of an abscess. [The first two, at least, are points with which most people will be ready to agree.]

H. Harold Scott.

SITSEN (A. E.). Die Komplikationen der Darmamöbiasis und deren Ursachen. [**The Complications of Amoebiasis of the Gut and their Origin.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1927. Mar. Vol. 31. No. 3. pp. 101–113. [27 refs.]

An interesting and valuable paper in which the various lesions demonstrated at autopsy are marshalled for examination and their significance discussed very fully. An abstract can but indicate the general scope. The material examined is gleaned from over 3,400 autopsies, mostly on Malays, carried out since 1913, at Soerabaja, Java. In 221 cases of demonstrable amoebiasis of gut many suffered from diseases other than dysentery. In 69 with obvious dysentery, this was probably not the sole cause of death, for all were helminth carriers, especially of ancylostome, ascaris and trichocephalus ; all had malaria and many some degree of beriberi. In 99 of the cases there were also present other diseases, e.g. pneumococcal, tubercle, leprosy and typhoid.

In one group besides dysentery, extension of the inflammation through the gut wall had set up peritonitis with adhesions, pararectal abscess and recto-vaginal fistula, [but para-and peri-metritis is common in the women—sequelae of genital, especially gonococcal, infection]. Perforation of ulcer and acute peritonitis were found also.

Liver abscess. 22 cases—14 in right lobe, 4 in left lobe, in 3 site not recorded, in one case in both lobes. In 15 abscess was single, in particular cases 2, 3, 4 and 8 abscesses were found, in 2 they were

"very numerous." In one, abscess had ruptured into peritoneum, and in 3 cases directly through diaphragm into chest. In the 221 cases of gut amoebiasis no cases were found of thrombosis of vena hepatica, inferior vena cava, or of branches of portal vein, without hepatic abscess and caused certainly by amoebae. (However, the author had recorded a case in Batavia, in which a partly organized thrombus completely blocked the portal vein, the walls of which were much thickened and infiltrated with amoebae. The liver was atrophied.) Some cases showed scarring, denoting former rupture through peritoneal covering of transverse colon.

Lung abscess was found in 2 cases—in one by direct extension rupture from liver through diaphragm ; in the other an abscess in right lung was present with 8 abscesses in liver. The author sets out the data in favour of embolus and direct extension from liver respectively, to account for lung abscess. He doubts if amoebic bronchitis is yet a proved entity.

Pericarditis—one case. Inflammation had extended through diaphragm into pericardium, without perforation, from an abscess in right hepatic lobe.

Cerebral abscess was not found. (The author had seen one such case in Batavia.) Its occurrence and mode of origin is discussed—probably by embolism from liver abscess.

Splenic abscess—in five cases splenic infarction was found, but three of the patients suffered from croupous pneumonia and one from fibrinous pleurisy. The infarction is not, therefore, clearly connected with the amoebiasis.

Urogenital system—abscess of kidney was found in one case ; gram negative bacteria were found in the abscess. The author notes and discusses (but does not accept all as satisfactorily proven) the reports of amoebic infection of urinary bladder and also joints.

The paper closes with a careful discussion of the manner and route by which amoebae travel from gut to other organs. Clinical and morbid-histological data are cited : a résumé is given of the course of the lymph vessels of gut, mesentery, stomach, spleen and liver ; it appears that there is no direct lymph connexion between gut and liver. However, the portal vein and its radicals, like other blood vessels, possess accompanying lymph channels—ready avenues which demonstrably are used by the amoebae. The author concludes that the evidence is in favour of lymph vessels as well as blood vessels being the channels along which the amoebae travel.

H. M. H.

GERBASI (Michele). Contributo alla conoscenza della dissenteria amebica nei bambini. [**Amoebic Dysentery in Children.**]—*Pediatria.* 1927. July 1. Vol. 35. No. 13. pp. 689–702. [12 refs.] [Univ. Palermo.]

The author gives brief records of 30 cases of amoebic dysentery among children. Nineteen were under the age of 2 years, and in some the disease was exceptionally severe, as many as 60 evacuations occurring in 24 hours. Most of them came from Palermo, where the disease appears definitely to be endemic. Seven terminated fatally, ten were taken away by their parents before the course was completed, and could not be followed up ; thirteen were cured. Emetine was used in all cases, the dose varying usually from 0·25 to 2 cgm.

The cases are divided into two categories on a clinical basis: (1) Those with sudden onset and running an acute course, in whom, if emetine treatment is not promptly taken in hand, death occurs in a few days; 21 of the 30 were of this type. (2) More chronic cases; less common, only 9 amongst the 30 recorded. They suffer from chronic diarrhoea, are often afebrile and rapidly emaciate, and may die from the dysentery or from some intercurrent disease.

H. Harold Scott.

Vialard & Darléguy. Sur quelques cas de pleurésie diaphragmatique droite primitive avec syndrome hépatique chez des malades coloniaux dysentériques amibiens. [**Primary Right Diaphragmatic Pleurisy in Patients who have had Amoebiasis.**]—*Arch. Méd. et Pharm. Nav.* 1927. Jan.-Feb.-Mar. Vol. 117. No. 1. pp. 5–29. [31 refs.]

An interesting paper in which is discussed very fully, with reference to illustrative cases which are in turn described, the very difficult matter (for the clinician) of the differential diagnosis of primary diaphragmatic pleurisy of the right side, in patients from the tropics who have suffered from amoebiasis. A summary of the paper is not possible. The authors bring out clearly that hepatitis and primary diaphragmatic pleurisy give identical clinical signs in all their variety, including that of temperature and the shoulder pain. They have found some important help from blood counts. For example, tuberculous pleurisy gives a decrease in polynuclears and an increase of lymphocytes and large mononuclears. Abscess of liver gives a definite polynuclear increase. Except in clear cases of effusion, purulent or otherwise, they are against exploratory puncture: one may thereby infect the liver with, for example, Koch's bacillus, if the needle passes through the pleura.

They urge the value of the therapeutic test. Treatment by emetine, stovarsol, treparsol, and the arsenobenzols can do no harm to a case of primary pleurisy; while if the condition be due to amoebiasis, treatment while clearing up the condition will make clear the diagnosis.

H. M. H.

Baldwin (A. H.), Heydon (G. M.) & Broben (J. A.). **Amoebic Dysentery acquired in North Queensland.**—*Med. Jl. Australia.* 1927. Mar. 12. 14th Year. Vol. 1. No. 11. pp. 374–375.

The authors state that although a certain number of well authenticated cases of amoebic dysentery acquired in Australia have been reported, fresh ones are always of interest. The present paper describes one case, and mentions a possible second case. Neither patient had ever been out of Australia. Examination of stools in the first case revealed *E. histolytica*, and many red blood cells, eosinophile cells, epithelial cells, Charcot Leyden crystals and many bacteria. The first treatment, before demonstration of amoebae, had been by polyvalent anti-dysenteric serum. It was unsuccessful. Eventually treatment by emetine-bismuth-iodide restored the patient to health with normal stools free from amoebae.

H. M. H.

KAPLAN (Bertha), WILLIAMSON (Charles S.) & GEIGER (J. C.). **Amebic Dysentery in Chicago: Preliminary Report of a Survey of Food Handlers following a Small Outbreak.**—*Jl. Amer. Med. Assoc.* 1927. Mar. 26. Vol. 88. No. 13. pp. 977–980. [3 refs.]

The occurrence within a short period of time of cases of amoebic dysentery in a large public hotel in Chicago led to the examination of 720 food-handlers.

Protozoa.	Cases.	Percentage.
E. coli	125	17·36
E. histolytica	16	2·22
Endolimax nana	10	1·39
Iodamoeba bütschlii	30	4·17
Giardia intestinalis	38	5·28
Trichomonas intestinalis	8	1·11
Chilomastix mesnili	9	1·25

Metazoan infections were as follows: five showed ova of *Trichuris trichiura*, two ova and segments of *Taenia saginata*, three (one Mexican and two Filipinos) ova of *Necator americanus*, one ova of *Ascaris lumbricoides*, and one of *Strongyloides stercoralis*. The incidence of carriers of amoebic dysentery in Chicago, other than food handlers, is being investigated.

H. M. H.

PICKARD (Rawson J.). **The Pathogenicity of the Small Races of the "Ameba of Dysentery."**—*Jl. Lab. & Clin. Med.* 1927. May. Vol. 12. No. 8. pp. 743–755. [19 refs.]

The author very interestingly and fully discusses the subject of his paper. His own summary of it is:—

"1. There is evidence that the intestinal protozoa cannot be beneficial to man, only negative evidence that they are ever innocuous, and positive evidence that they can be dangerous; theoretically any of them might become pathogenic. The danger of an infection may be shown either by time of observation in the individual, or by the percentage of disease in a number of infections.

"2. *Entamoeba histolytica* presents two types: a race with large cysts usually associated with amoebic dysentery of tropical origin, and a race with small cysts that is common everywhere, rarely associated with dysentery, but apparently the cause of low grade illnesses in midlife. The most complete proof of the etiologic relationship of the amoeba to this pathogenicity has been given by KOFOID and his followers.

"3. BRUMPT thinks the small race differentiated enough to be considered a separate species, *E. dispar*.

"4. The question of mutability or immutability of the size races of *E. histolytica* awaits perfection of culture methods and media, its growth in pure culture free from bacteria, preferably with living tissue cells to approximate natural conditions. Study could then be made of the histolytic enzyme or other products. Surveys of different age-groups would show at what time of life amoebic infection begins.

"5. The effect of tropical climate on man and its possible reaction upon his parasites, suggested by HAUGHWOUT, is important. RODDIS and COOPER have shown a definite harm from tropical climate, lowered basal metabolism, blood pressure, suggesting the possibility of other variations."

H. M. H.

YORKE (Warrington) & ADAMS (A. R. D.). **Observations on *Entamoeba histolytica*. III. Some Factors governing Development and Excystation of the Cysts *in Vitro*.**—*Ann. Trop. Med. & Parasit.* 1927. July 22. Vol. 21. No. 2. pp. 281-292. [4 refs.]

The authors have shown (1926) that cysts of *Entamoeba histolytica* readily develop and excyst under suitable conditions *in vitro*. They pointed out that moisture and temperature about 37° C. were essential for excystation (*ante*, p. 15). Later (1926) DOBELL and LAIDLAW reported successful culture from *E. histolytica* cysts which had appeared from time to time in their culture tubes, and also from cysts passed in faeces. They stated that "cysts just passed in the stools do not hatch or develop further if placed immediately in culture-media and incubated at 37° C.: they merely die. They must first be allowed to cool, and must then be kept for a certain time"—about one or two days. Important epidemiological questions now arise: the faeces of chronic dysenterics are then not infective for one or two days after being voided?

Yorke and Adams had the contrary impression; although they had not specially investigated this point, they had amongst their protocols many records of successful initiation of culture from *E. histolytica* cysts passed only three or four hours. To reinvestigate the subject, patients suffering from chronic amoebic dysentery were brought to the laboratory where they evacuated the bowel; so that freshly-passed stools could be sown immediately in warm Locke-egg-serum medium (BOECK 1924; BOECK and DRBOHLAV 1925). A differential count in iodine of the various cysts and vegetative amoebae (i.e., as regards the number of nuclei they contained) was made immediately on passage of the faeces, and also after its cultivation on L.E.S. medium for five hours. The technique of the experiments is described. The observations are discussed, and the results, presented in tabular form, are analysed.

The authors' summary of their work is:—

"1. We have been unable to confirm the recent statement by Dobell and Laidlaw that before the cysts of *Entamoeba histolytica* can hatch or develop further, they must first be allowed to cool for a period of one or two days in order that 'maturation' may occur.

"2. Immature cysts (i.e., uni- and bi-nucleates) just passed in stools develop further if placed immediately on culture-media and incubated at 37° C., so that within a few hours the great majority of the cysts have become quadrinucleate.

"3. Cooling immature cysts to from 0° to 5° C. for periods up to 48 hours does not destroy them or interfere with their capacity to develop and excyst.

"4. The degree of excystation resulting from sowing freshly-passed faeces on L.E.S. medium, and incubating at 37° C., is very variable; it may be nil, and it rarely exceeds 50 per cent. This relatively poor excystation cannot, however, be explained on the hypothesis that the cysts require to undergo maturation outside the body at low temperatures, because cultures of washed concentrated cyst-suspensions, prepared at 37° C. from the freshly-passed faeces, invariably yield a much higher degree of excystation, frequently approaching 80 to 90 per cent.

"5. There appears to be no reason to doubt that in some stools an appreciable proportion of the cysts are dead at the time of passage, but in other cases the percentage must be practically negligible.

"6. Evidence has been adduced that freshly-passed faeces contains something which inhibits excystation."

H. M. H.

DOPTER (C. A. H.). L'amibiase pulmonaire. [**Pulmonary Amoebiasis.**] —*Arch. Méd. et Pharm. Milit.* 1927. Apr. Vol. 86. No. 4. pp. 269–284.

An interesting and full review of the subject. Only some indication of its scope can be given. Abscess of the liver extending through diaphragm into lung, and rupturing into a bronchus; and abscess of lung separated from, yet once connected with a co-existing abscess of liver, are well known. Besides these forms of pulmonary amoebiasis there exists:—

1. The *primary amoebic abscess of lung*, having no connexion with abscess of liver, which organ is unaffected. In most, but not all cases of primary amoebic lung abscess there can be obtained a history of former dysentery or diarrhoea. Primary abscess of lung is usually single, but close around the obvious single larger abscess are often satellite smaller ones which eventually coalesce with the central larger one. Multiple primary abscess of the lung has been recorded. The primary abscess has been recorded more often in the right than in the left lung. Its size may reach that of a foetal head. The author describes its macroscopic and microscopic anatomy, discusses lucidly the often very difficult differential diagnosis, and stresses the point that if amoebae are not found in the sputa diagnosis may be settled by noting the effect of emetine treatment. For though emetine by its vaso-constrictor action cures haemoptysis, it does not cure pulmonary tuberculosis, which will progress in spite of its administration; but emetine will cure pulmonary amoebiasis. He discusses the matter of surgical intervention; in those cases where free drainage through a bronchus has not been established and where the abscess is too large for absorption surgical measures are necessary.

2. *Amoebic bronchitis.* The author doubts if this be a proved entity yet; he recounts the evidence in its favour brought forward by PETZETAKIS; and Mme. PANAYOTATOU, who indeed claims priority in this matter, and some others; but he notes that many observers on the look-out for it in countries where amoebiasis is frequent and well-known have failed to confirm the existence of amoebic bronchitis. He describes its symptomatology—that of ordinary bronchitis—and its cure by emetine therapy. Mme. PANAYOTATOU has described a case of amoebic dysentery in a girl, and later amoebic bronchitis of the girl's father apparently infected by the daughter. The author notes that given the reality of amoebic bronchitis then this in turn may infect others and cause amoebic dysentery.

H. M. H.

TESTOLIN (C.) & BARRALT (R.). Absceso de pulmón de origen amebiano. [**Amoebic Abscess of the Lung.**]—*Semana Méd.* 1927. June 9. Vol. 34. No. 23 (1743). pp. 1392–1393.

The patient, a man of 74, had an attack of dysentery lasting for three days some 3–4 months before coming under the authors' care as a case of broncho-pneumonia. Localized signs in the left lung were ascribed to a loculated interlobar empyema. Operation revealed an abscess containing creamy pus and material from its wall showed living amoebae with the characters of *E. histolytica*. There was no affection of the liver. Emetine was given, 4 cgm. daily for six days, and recovery was uneventful. The case is recorded on account of the rarity of involvement of the left lung and the fact that the abscess was not secondary to amoebic hepatitis.

H. Harold Scott.

Bonorino Udaondo (C.) & Centeno (Angel M.). Sobre un caso de amebiasis bronco-pulmonar. [**Broncho-Pulmonary Amoebiasis.**]—*Prensa Méd. Argentina.* 1927. Apr. 10. Vol. 13. No. 31. pp. 1029–1032. With 2 text figs. [1 ref.]

A man of 38 years was admitted to hospital with a history of troublesome cough and copious blood-stained expectoration, for the preceding 15 days. Tuberculosis was suspected, but no bacilli found. Ten months previously he had suffered with abdominal pain and diarrhoea, seven or eight stools daily containing blood. The physical signs were those of bronchitis and localized broncho-pneumonia. No amoebae were found in the stools or in the sputum. The signs all cleared up in 20 days after a course of emetine injections. Diagnosis was made on the results of the treatment.

H. Harold Scott.

Peyre (E. L.). Fistule entéro-pulmonaire d'origine amibienne. [**Entero-pulmonary Fistula of Amoebic Origin.**]—*Bull. Soc. Path. Exot.* 1927. Mar. 9. Vol. 20. No. 3. pp. 213–215.

The patient was invalided from Cambodia where he had suffered from dysentery. Emaciation. No amoebae or cysts found in stools. Resection of left rib for purulent effusion. *Necropsy* revealed—liver (2,250 gm.) enlargement of left lobe. The convexity presented 7 small abscesses, the pus from which contained numerous motile amoebae. The transverse colon at splenic flexure was fixed by a mass of adhesions to the diaphragm. The adhesions enclosed a fistula between diaphragm and colon, leading to pulmonary abscess. The colon itself in the neighbourhood showed typical amoebic ulceration.

H. M. H.

Lipscomb (H. R.). **An Interesting Case of Amebic Abscess of the Liver with Rupture into the Lung.**—*U.S. Veterans' Bureau Med. Bull.* 1927. May. Vol. 3. No. 5. pp. 468–471. With 4 plates.

The patient suffered from cough, bloody sputum, fever, pain in right chest, loss of weight. When first seen the impressions in order of probability were: (1) Abscess of right lung, probably amoebic; (2) cyst; (3) tumour; (4) syphilis. A full account is given of the case. The Wassermann proved negative. Diagnosis was difficult on account of length of time which elapsed between attacks; density of tissue which did not resemble abscess; absence of amoebae in faeces and sputum. The final diagnosis, however, was amoebic abscess of liver and right lung. The abscess wall was very thick and dense; it was rapidly and completely absorbed after potassium iodide and diathermy followed by a second course of emetine.

H. M. H.

Hallé (Jean) & Mollaret (P.). Abcès dysentérique du foie ouvert dans les bronches au cours d'un traitement par l'émétine. Guérison. [**Amoebic Abscess of Liver opening into Bronchi in the Course of Emetine Treatment.**]—*Bull. et Mém. Soc. Méd. Hôpit. de Paris.* 1927. Apr. 14. Year 43. 3rd Ser. Vol. 51. No. 13. pp. 508–510.

The patient, a man of 28, who had suffered from amoebic dysentery six years previously in Morocco, was treated by emetine injections; since then he had noticed no return of dysentery. He complained of pain at base of right lung. No fever. X-rays revealed a very large right lobe of liver with immobility of right diaphragm. No amoebae or cysts were found in

the stools. Hepatic abscess was diagnosed and emetine injections begun. Next day patient coughed up brownish purulent sputum. Emetine injections continued and liver diminished in size. On 18th day patient coughed up very large quantities of chocolate pus and his temperature became febrile. This continued for four days, after which purulent expectoration decreased. Arsenobenzol injections were given now daily for six days, and then emetine injections resumed. The patient made an apparently complete recovery. The author remarks on this illustration of the efficacy of emetine, and also on the lesser gravity of rupture of amoebic abscess into bronchus as compared with the very grave results of rupture of hydatid cyst into bronchus.

H. M. H.

MESLAY & COCHEZ. Un cas d'amibiase hépatique autochtone. [**Indigenous Case of Amoebiasis of the Liver.**]—*Rev. Méd. et Hyg. Trop.* 1927. May-June. Vol. 19. No. 3. pp. 77–81. With 4 charts in text.

An interesting and lucid account of a type of case, which though familiar to "tropical" practitioners, is still (so the authors state) too often unrecognized for its true nature, in France.

A man 36 years old: five months' loss of weight, and persistent fever. Examination of lungs revealed nothing definite. Serum tests negative. Blood counts revealed polynuclear leucocytosis. No parasites found in blood films. No Koch's bacilli in sputa. X-ray showed relative raising and impaired motility of right diaphragm. Some pain in right hypochondrium. Apparent recovery after a fortnight's open air, and nourishing diet; followed by return of fever, sweats and now more severe right hypochondrial pain, with cough, on resuming work. At this point the patient came under the authors' care. He was found to have pale earthy tinted skin, was wasted, complaining much of right hypochondrial pain—this region was tender to percussion. Liver was enlarged and tender—it measured 24 cm. in the nipple line. Some diminution of percussion note and breath sounds, with pleural friction, at right pulmonary base. Intermittent fever and night sweats. Palpable spleen. No glycosuria or albuminuria. Heart normal. Blood count gave 19,000 whites, with 85 per cent. polynuclears. Stools revealed amoebae.

The patient's history showed that he had not been out of France except for a three weeks' sojourn in Tunis seven years previously. He denied any dysentery. Eight years previously (1916) he had been invalided from the Verdun front for enteritis. The patient was treated by emetine injections and later by "novar" injections in addition. At once there ensued rapid disappearance of fever, decrease in size of liver, and restoration to good health. When examined 3½ years later he was found to be in perfect health.

The authors discuss this case and conclude that the data support a diagnosis of liver abscess. They translate, yet echo, Patrick MANSON'S adage on the matter of amoebic infection of the liver—"le grand secret d'un diagnostic heureux est surtout d'y penser."

H. M. H.

BHATTACHARYA (Amulya Kumar). **A Case of Liver Abscess.**—*Indian Med. Gaz.* 1927. May. Vol. 62. No. 5. pp. 261–262.

A male patient, age 50 years, had suffered from pain and swelling in hepatic region for one year. No history of dysentery or venereal disease. In November, 1925, he received "a course" [actual amount not stated] of emetine injections with much benefit, but discontinued treatment too

soon. In August, 1926, he was found to be emaciated; fever 100° to 102° F.; hepatic area tender, and dull to four fingers breadth below costal margin. Liver abscess was diagnosed. The patient was given one grain of emetine intramuscularly for nine days. Temperature became intermittent, but no other change. Aspiration then drew off 550 cc. of pus and six more daily injections of emetine were given. Abscess cavity refilled and 17 days after first aspiration a further 33 cc. of pus were withdrawn and cavity irrigated with quinine solution. Patient's condition worsened and 11 days after second aspiration open operation was performed and drainage tube inserted. Uneventful recovery followed.

The author remarks on the failure of emetine in this case —and opines that emetine alone is only of use when the abscess is a small one.

H. M. H.

Petridis (Pavlos). Traitement de l'abcès tropical du foie. [**Treatment of Hepatic Abscess.**]—*Bruxelles-Méd.* 1927. May 8. Vol. 7. No. 28. pp. 883–903. With 1 chart & 5 text figs.

In this interesting and valuable paper the subject is very fully discussed. We can but indicate its general scope. In 1912 Leonard Rogers published the result of his research on emetine and its action in amoebiasis. It completely transformed the treatment of liver abscess: for by means of emetine dysentery is more successfully treated, and in consequence, there has been a very great reduction in hepatitis and liver abscess: once hepatitis is set up, emetine disengorges the liver and prevents suppuration: if abscess be formed emetine promotes its absorption, either by itself alone or aided by puncture or other surgical intervention.

Before 1912 there was no other means of treating liver abscess than by open surgical operation. Since 1912 the choice lies between:—

(1) Purely medical treatment with emetine—perhaps associated with other drugs.

(2) Puncture-aspiration, with or without drainage, and in addition emetine treatment.

(3) Open surgical operation, and in addition emetine treatment.

Thus, some form of emetine therapy is obligatory in all cases and in addition to any method of surgical intervention. Each of these three lines of treatment, indications for its adoption, and its technique, are described and discussed fully. The author gives warning that repeated exploratory punctures have sometimes proved fatal, and sometimes failed to disclose a collection of pus present all the time. Puncture aspiration plus emetine treatment is the therapy most often adopted. For those rare cases in which it is necessary, an open operation (that of Aristide Petridis) is described and illustrated—it involves resection of 7th, 8th, 9th, and even if need be 10th ribs; the incised edges of skin, pleura, diaphragm are sutured together, and the liver then incised, pus evacuated, drained, and emetine given to the patient before and after operation.

H. M. H.

Izar (Guido). Sindrome di anemia perniciosa in amebiasi cronica. [**Pernicious Anaemia in Chronic Amoebiasis.**]—*Riforma Med.* 1927. Apr. 25. Vol. 43. No. 17. pp. 385–387. [3 refs.]

This is apparently a verbatim report of a clinical lecture on a case of severe anaemia. Omitting irrelevant matter, the blood examination

revealed erythrocytes 1 million, haemoglobin 30 per cent. No cause could be found and the diagnosis of "idiopathic" anaemia was made. Examination of the faeces was negative on three occasions, but after enemata some sparse vegetative forms of *E. histolytica* and many precystic forms were detected.

Treatment with injections of emetine hydrochloride, 3 cgm. daily, was begun and in twelve days the red cells had increased to 2 million and the haemoglobin to 65 per cent. This was followed by stovarsol and another course of emetine. Further slight improvement in the blood took place and the general condition was much benefited. *E. histolytica* was no longer found. The treatment is to be continued.

H. Harold Scott.

Niño (Flavio L.) & Masucci (Antonio L.). Amibíasis ósteoarticular de la cadera. [**Amoebic Infection of the Hip-Joint.**]—*Bol. Inst. Clin. Quirúrg.* Buenos Aires. 1926. Vol. 2. No. 14, 15 & 16. pp. 280–288. With 5 text figs. & 12 coloured figs. on 1 plate. [2 refs.]

In March, 1926, one of the authors found vegetative forms of *E. histolytica* in the pus aspirated from a knee, after trauma. This unpublished record is mentioned as an introduction to the present account of a girl, aged 7 years, who nine months before coming to hospital fell and injured the right hip. Seven months later she had rise of temperature with pain in the left leg. X-rays showed osteoarthritis of the right hip with luxation. At the lower end of the left tibia there was periostitis with osteomyelitis.

Pus aspirated from the hip revealed active amoebae, with a diameter of 14 to 28 microns, and nucleus 4 to 8 microns; in some the ectoplasm was distinct from endoplasm, and within the cytoplasm were two to five red blood corpuscles and occasionally polymorphonuclear leucocytes and bacteria. The stools were loose and contained cysts of *E. histolytica*, *G. intestinalis*, and *Blastocystis hominis*.

A plate with 12 coloured figs. illustrates the forms of amoebae seen. The authors regard the case as one of localization of the amoebae in a *locus minoris resistentiae* the result of trauma, and recommend systematic examination of the faeces in all cases of osteoarthritis of uncertain origin.

H. Harold Scott.

Bianchi (Andrés E.). Amibíasis y granulomatosis abdominal. [**Amoebiasis and Abdominal Granulomatosis.**]—*Bol. Inst. Clin. Quirúrg.* Buenos Aires. 1926. Vol. 2. No. 14, 15 & 16. pp. 289–297. With 5 text figs. & 1 coloured plate.

During the last six years there has been noted in the Institute of Pathological Anatomy at Buenos Aires an increasing number of cases of granulomatous growths, especially abdominal, apparently in connexion, or at least association, with amoebic dysentery. The author gives in detail another case.

A man of 38 years had had during the previous three months, frequent attacks of diarrhoea with tenesmus, glairy stools, containing blood and numerous amoebae of the *histolytica* type. There was pain in the hypogastrium and both iliac fossae, the liver extended to three fingers'-breadths below the costal margin, and the spleen was a little enlarged. There was irregular fever and rapid emaciation and the patient died [the duration of illness is not stated]. At the autopsy small ulcers were found in the lowest third of the oesophagus and also in the caecum and colon. In the liver was an umbilicated nodule, hard in consistence, greyish-white, the size of a small orange; there were many smaller deposits. The spleen was

enlarged and contained nodules varying in size from that of a grain of maize to a small nut. At the upper border of the pancreas and at the hilum of the spleen were masses of glands enlarged and occupied by growths.

The details of the histological characters are not very fully described, but are said to have shown the " typical picture of lymphogranuloma."

H. Harold Scott.

Sellards (Andrew Watson) & Baetjer (Walter Albert). **The Occurrence of Atypical Amoebiasis.**— *Parasitology.* 1927. Mar. Vol. 19. No. 1. pp. 48–53. With 6 figs. on 1 plate. [5 refs.]

Conclusions :—

" A case of chronic colitis [described in 1915 (see this *Bulletin*, Vol. 6, p. 48] is reviewed in which entamoebae were found in the stools. The disease was reproduced experimentally in kittens, the infected animals showing only a mucous diarrhoea without blood and without ulceration of the intestine.

" Morphologically, the majority of the entamoebae showed remarkably atypical nuclear features. The accompanying illustrations are offered as evidence of the occurrence of true entamoebae in the discharges of an infected kitten."

H. M. H.

Trabaud & Michel. Diagnostic différentiel entre la cholécystite amibienne et l'abcès amibien du lobe de Spiegel. [**Differential Diagnosis between Amoebic Cholecystitis and Abscess of Spiegel's Lobe.**] —*Bull. et Mém. Soc. Méd. Hôpit. de Paris.* 1927. May 19. Year 43. 3rd Ser. Vol. 51. No. 16. pp. 644–647.

A male patient was admitted to hospital with the diagnosis of cholecystitis, gastric derangement and " fever." Constipation had followed on light diarrhoea ; no blood or mucus in stools. The patient was found to be without fever, and examination revealed under right costal margin a tumour, apparently the enlarged gall bladder. The tumour was intra-abdominal, for it disappeared when the abdominal muscles contracted, as on the patient's sitting up ; it was very tender to palpation. X-ray showed normal sized liver ; a shadow in the gall bladder region was taken to represent that viscus, enlarged. The spleen was not palpable. The stools revealed neither amoebae nor cysts. No malarial parasites were found in the peripheral blood. A count gave 4,400,000 reds ; 1,632 whites, polynuclears 76 per cent., mononuclears 21 per cent., eosinophiles 3 per cent. The general condition of the patient was good.

That it was amoebic cholecystitis appeared certain to the authors [one wonders why so certainly amoebic] ; the dilatation of the gall bladder contra-indicated emetine treatment alone. Cholecystotomy and drainage was decided upon, in the confident expectation of demonstrating living amoebae in the contents of the gall bladder, and by inoculating the bile into a kitten's rectum to place beyond dispute the existence of the amoebic cholecystitis syndrome. Operation actually revealed an abscess in the spigelian lobe of the liver. Drainage and emetine procured uninterrupted recovery.

The authors note the absence of usual liver-abscess signs such as, fever, enlargement or congestion of liver, which led to the diagnosis of cholecystitis. They refer to their own former observations, and those of Vassopoulo, Petridis, Petzetakis, Tanon and Risgalla, as establishing without doubt the reality of amoebic cholecystitis.

The differential diagnosis of this case is discussed [without any clear guide to its differentiation emerging] ; and the authors conclude by pointing out the help to accurate diagnosis that could be obtained from the newer methods of radioscopy whereby the walls of the gall bladder are clearly outlined. In future, such radioscopy must be called in aid ; for cholecystitis needs medical treatment, abscess of the liver, surgical intervention.

H. M. H.

Betfau (J. P.). Contribution à l'étude de la thérapeutique de l'amibiase. [**Treatment of Amoebiasis.**]—*Rev. Méd. et Hyg. Trop.* 1927. Mar.-Apr. Vol. 19. No. 2. pp. 53–55.

A brief account of treatment of amoebiasis (acute and chronic) by intramuscular injections of iodide of bismuth, quinine and arsenic (Tri-iodo-Ercé). Of 52 patients thus treated, 7 relapsed and two died (one of tuberculosis of intestine), and 43 were clinically cured and free from relapses with no amoebae or cysts in stools for one to two years after treatment—82 per cent. successful results. There was no bismuth stomatitis or other complication. The author claims as an advantage for this therapy that it is equally effective for syphilis and malaria, which in tropical practice are often associated in the same patient.

[Details of dosage and frequency of injections are not stated.]

H. M. H.

Dupuy (L.). Essais de traitement de la dysenterie au Yatren. [**Treatment of Dysentery by Yatren.**]—*Bull. Méd. du Katanga.* 1926. Dec. Vol. 3. No. 4–5. pp. 156–160.

Two European cases, recurrent dysentery with wasting and exhaustion after thorough emetine treatment. Dysentery amoebae in bloody stools. Both made rapid and complete recovery, with absence of amoebae in stools, after daily clysters of yatren for 8 days, combined with yatren pills by mouth.

Ten African natives, primary amoebic dysentery. Complete recovery with absence of amoebae in stools after yatren clysters, and yatren pills by mouth, as in the European cases. The author remarks that in contrast to the classical emetine treatment, which led to wasting, loss of appetite, exhaustion, and even muscular paresis, yatren treatment rapidly brings about appetite and disappearance of the earthy tint of skin, and does not require for more than 8 days any low dieting.

H. M. H.

Schwartz (Louis). Contribution à l'étude du traitement de la dysenterie amibienne par le yatrène 105. [**Treatment of Amoebic Dysentery by Yatren.** –56 pp. [19 refs.] 1927. Paris: Librairie Médicale et Scientifique, Marcel Vigné, 13 rue de l'Ecole de Médecine.

The author points out the widespread dissemination [or is it only recognition, and often wrongly ?] of amoebic dysentery following on the Great War. Though, since 1921, other countries have reported favourably on the effect of yatren 105 in amoebic dysentery, in France

this therapy has been hitherto neglected. He records his careful observations in the hopes that his medical compatriots may be induced to give this drug further trial. He describes the composition of the drug itself; refers to the observations of [some of the numerous] workers who have investigated its effects in amoebiasis; and concludes that yatren purissimum 105 is an efficacious remedy against amoebic dysentery, for he found it effective in one case each of acute and chronic amoebic dysentery, one of the latter class with liver abscess the abscess proving fatal, and one of dysentery with lesions high in the gut, yatren being given by the mouth.

H. M. H.

Pullè (Felice). Tentativo di cura dell' amebiasi infantile col frutto del *Sorbus domestica*. **The Sorb-Apple in Amoebiasis of Children.**] — *Arch. Ital. Sci. Med. Colon.* 1927. May. Vol. 8. No. 5. pp. 253–261. [6 refs.]

Four cases of dysentery are related in patients of 4 to 12 years of age. In addition to other measures the author prescribed the fruit of *Sorbus domestica*—the Sorb-apple—which is astringent, but not, it would appear, objectionably so, for the patients take it and even ask for more. The pulp of the fruit is eaten raw, or it may be pressed through a sieve, in doses of a teaspoonful every three hours, followed by the same quantity of coffee, to a cup of which a teaspoonful of brandy has been added. The results were very promising and the author records them in the hope that others may make trial of the fruit as a remedy for amoebic dysentery in children.

H. Harold Scott.

Chatridse (I.). Lambliophagie durch Entamöben des menschlichen Darmes. [**Lambliophagy by Entamoebae of the Gut of Man.**] — *Arch. f. Schiffs- u. Trop.-Hyg.* 1927. May. Vol. 31. No. 5. p. 242.

In a brief paper the author states that ingestion of flagellates by gut-amoebae occurs not only in man but in other animals also. Thus Wenyon (1920) described such occurrence in the gut of Egyptian lizards (*Lacerta agilis* and *Agama stelio*)—the entamoebae here being morphologically indistinguishable from "*E. coli hominis*." Dobell (1919) records ingestion by *E. coli* of the cysts of *Isospora hominis*, *Entamoeba histolytica*, Lamblia; and of the vegetative forms of Trichomonas, and Lamblia; and that this had been observed before by Grassi (1880), Casagrandi and Barbagallo (1897), O'Connor and Wenyon (1917).

The author remarks that though Lamblia and Entamoeba often co-exist in the gut of man, yet ingestion of the former by the latter has apparently—in so far as the literature reveals it -been seldom observed. In his own cases he noted the ingestion by vegetative forms of *E. coli* of both cysts and vegetative forms of Lamblia, (4, 5, 6 in number), and erythrocytes as well.

He claims that the characters of their movements, of their endo- and ecto-plasm, when alive, and of the structure of the nucleus in stained specimens, sharply differentiate these amoebae from the common "*E. coli hominis*" and that they constitute a separate and true species, which he names "*Entamoeba lambliophaga coli hominis.*"

H. M. H.

Deschiens (R.). Recherches sur la culture d'*Entamoeba dysenteriae.* Modification du milieu et de la technique de Boeck-Drbohlav. [**Culture of *E. histolytica*. Modification of the Boeck-Drbohlav Medium.**]—*C.R. Soc. Biol.* 1927. May 27. Vol. 96. No. 17. pp. 1356–1358. [1 ref.]

The author demonstrated that certain trichomonads cultivable on Boeck-Drbohlav (B.D.) medium (egg, albuminous Locke-Ringer solution) (L.R.), developed better when L.R. was replaced by physiological saline solution, 7 parts in 1,000. He has found this true for *Entamoebae dysenteriae* and *E. coli.*

In a 10 mm. tube is placed 2 cc. of whole-egg, 10 parts-in-1,000-physiological-salt-solution, coagulated on slant at 75° C. for 1 hour; the coagulated slant covered by 1 to 2 cc. of egg-white, 10 parts-in-1,000-physiological-salt-solution. (This medium approximates to Craig's.) Without the albumen, the amoebae developed for 2 or 3 days and then vanished. In albuminous-physiological-salt-solution of pH 7·2 to 7·6, with added rice starch, the amoebae were found at bottom of tube in the starch sediment but in 48 hours they had vanished. With no added starch they lived for 2 or 3 days only. Instead of the daily resowing into the 6 tubes necessary with Craig and B.-D. media, the author *decants* by pipette the liquid portion of medium, taking care to leave behind the layer lying in the angle formed by solid surface and wall of tube. This zone is richest in amoebae. Fresh albuminous-physiological-salt-solution (easy to keep on ice) is then added to the solid part of the medium. By this *daily decanting*, one tube of medium cultivates amoebae for 10–15 days. Daily resowing into fresh media, as control, showed always less multiplication of amoebae.

For good growth of amoebae—

(1) After each decanting and refilling 0·02 gm. of rice starch should be added and tube gently shaken.

(2) pH must be between 7·2 to 7·6; below 6·2 amoebae die and at 8·6 there is no growth.

(3) Richest growths are where layer of liquid in angle between solid medium and wall of tube is 1·5 to 2 cm. in depth.

(4) After decanting the old, the fresh liquid added should be at T° near 37° C.

H. M. H.

Manzoli (Giovanni). Topografia dell'amebiasi in provincia di Bologna. [**The Regional Distribution of Amoebiasis in Bologna.**]—*Arch. Ital. Sci. Med. Colon.* Tripoli. 1927. Apr. Vol. 8. No. 4. pp. 194–205. With 1 map in text. [8 refs.]

This brief paper is furnished with a spot-map giving the distribution of amoebiasis in Bologna but, unfortunately, the map has been so reduced that none of the names are legible except with a lens. Only a portion of the text refers to the subject of the title, the rest consisting of general remarks of historical and statistical character.

H. Harold Scott.

Bacillary Dysentery.

Wolff (J. W.). De Epidemiologie der Bacillaire Dysenterie in Deli. **The Epidemiology of Bacillary Dysentery in Deli.**]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1927. Vol. 67. No. 1. pp. 140–150. [4 refs.]

This paper treats of the steady increase in bacillary dysentery in Deli, Sumatra. Statistics were collected and investigations carried out at the Central Laboratory of the Planters' Association at Medan. The increase has been specially noticeable during the early months of 1926, and may in general be traced to (1) the greatly increased importation of indentured labour from Java, as a result of the great activity on rubber and other estates. Much new land was opened up for cultivation. The coolies needed for this work bring the disease with them. As additional factors to this introduction of the disease are to be counted the overcrowding on board immigrant vessels, the temporary housing accommodation available on estates, insufficiency of latrines and defective water supply. (2) But the disease is not wholly to be regarded as an importation, for there is a source of infection in Deli itself, in the resident Batak population. Of this, however, much less is known.

W. F. Harvey.

Wilkins (Lawson). **The Incidence of Dysentery and Diarrhea among White Infants under Two Years of Age.**—*Amer. Jl. Dis. Children.* 1927. May. Vol. 33. No. 5. pp. 705–710. With 3 charts in text. [1 ref.]

The author states that bacillary dysentery is common and widespread among infants in Baltimore. Because of lack of facilities, cultures of stools were not made in the majority of these cases. The differential diagnosis was a clinical one, dysentery being diagnosed on : (1) blood or pus associated with much mucus in stool ; (2) abrupt stormy onset ; (3) fever ; (4) persistent lack of appetite ; (5) slow response to dietary treatment.

(*a*) In a group of 628 white infants under 2 years of age representative of the poorer middle class, from 7·5 to 13 per cent. developed dysentery during summer of 1925, and 27 per cent. developed simple diarrhoea. Among those not exclusively breast-fed, incidence of dysentery was 10–17 per cent. and of diarrhoea 33 per cent.

(*b*) Of all the cases of gastro-intestinal disturbance encountered, 19–33 per cent. were caused by dysentery.

(*c*) Dysentery lasts much longer than "simple diarrhoea"—more than two weeks longer in 65 per cent.

(*d*) When breast-fed infants are excluded, there is approximately the same frequency of gastro-intestinal disturbances during the first and second summer of life.

(*e*) It is important to recognize that dysentery is one of the most common infectious diseases among infants.

H. M. H.

Wiseman (W. R.). **Outbreak of Enteritis near Glasgow. A Bacteriological Account.**—*Lancet.* 1927. Apr. 16. pp. 817–818. [2 refs.]

Over 80 adults and children were attacked during a period of some weeks with illness lasting 4–7 days. The reasons given for regarding

the organisms isolated as causal are : (1) they were all identical ; (2) they belonged to an uncommon group (Sonne III) of a dysenteric type. As the milk supply was suspected an examination was made of the stools of the farmer, his wife and daughter. The farmer himself gave a negative result, but his wife and daughter furnished organisms identical with those obtained from the stools of 3 patients. The daughter had not any symptoms, but the wife had suffered recently from diarrhoea. At first the biochemical reactions of the five organisms were those of *B. dysenteriae* (Flexner) but changed to become those characteristic of Sonne's group III. Serological tests with a Flexner Y serum were negative. The isolated organisms did not react with the patients' sera at the time of isolation but became agglutinable after a period of growth on artificial media. After about 9 weeks' cultivation the organisms were also agglutinated by a Sonne III bacillus serum to the full titre, 1–12,500, in fine flocculi. A saturation test with one of the organisms and Sonne III serum gave practically complete absorption of agglutinins. The author considers that his evidence points to the causative organisms being of the Sonne III group.

W. F. Harvey.

Elkeles (Gerhard) & Schneider (Alice). Epidemische Häufung von E-Ruhr (Kruse) im Jahre 1926 in Berlin. [**Epidemic Frequency of E Dysentery in Berlin.**]—*Cent. f. Bakt.* I. Abt. Orig. 1927. July 1. Vol. 103. No. 1-3. pp. 48–56. With 2 text figs. [16 refs.] [Infect. Dis. Research Board, Charlottenburg-Westend.]

The epidemic here referred to, which accounted for a considerable succession of cases, has been ascribed to the E dysentery strain of Kruse, which is identical with Sonne's group 3 strain. Altogether in the course of 8 months 141 cases occurred. The characters of the isolated organisms were investigated in their cultural, serological and pathogenic aspects. Colonies present two distinct types, either the dentate, strictly " E form," which is irregular in shape, granular and increases in size ; or the transparent, small, round, mottled colony. The latter represents the transition from the ordinary dysentery type and gives rise to daughter colonies of the E type. This E type is, according to Sonne, differentiated by its production of a 3-fold colouration of litmus milk, first to red, then to blue and then after 1 to 2 weeks or more to red again, with coagulation of the milk. It is difficult to obtain a high titre agglutinating serum to the E strain and the flocculi are finely granular ; agglutination with a patient's serum seldom exceeds 1–50. The pathogenicity of the strain to white mice is small and uncertain.

W. F. Harvey.

Elkeles (Gerhard). Zur Epidemiologie, Diagnose und Namengebung der Ruhr. [**Epidemiology, Diagnosis and Nomenclature of Dysentery.**]—*Cent. f. Bakt.* I. Abt. Orig. 1927. July 1. Vol. 103. No. 1-3. pp. 57–64. [6 refs.] [Infect. Dis. Research Board, Charlottenburg-Westend.]

This is a disquisition, based upon experience obtained in an epidemic of " E dysentery " (see above).

(1) The annual summer prevalence of dysentery is probably not the result of a general transformation of non-pathogenic intestinal bacteria

into dysentery bacilli, but to a limited number of foci which owe their existence to chronic dysentery cases or to the much less common instance of transformation of a saprophyte into a dysentery bacillus. Rapid extension of the disease is accounted for by seasonably favourable conditions and the extraordinary infectivity of dysentery. Thus the key to successful control of dysentery lies in early recognition of cases and early action.

(2) The classification of dysentery bacilli is best effected by means of KRUSE's scheme. But the terms pseudodysentery and pseudodysenteric bacilli ought to be dropped. All types of dysentery bacilli from the Shiga-Kruse to the J bacillus of KRUSE should be regarded as dysentery bacilli, while the Shiga bacillus, with the necessary extension of its characters, would remain the type organism.

(3) Diagnosis of the different types may be rapidly effected by means of Shiga-Kruse serum and by certain mixtures of the so-called pseudodysentery sera. Sera corresponding to Kruse's A, D and E types serve as the basis of these mixtures.

W. F. Harvey.

KINGSBURY (A. Neave) & KANAGARAYER (K.). **The Serum Treatment of Acute *B. dysenteriae* (Flexner) Infections.**—*Malayan Med. Jl.* 1927. Mar. Vol. 2. No. 1. pp. 16–19.

Opinion has been almost unanimous that serum is of marked therapeutic value in bacillary dysentery provided it is polyvalent, of reputable make, and given in sufficient dosage early in the course of the disease. Its action is antitoxic rather than antimicrobic, and better results are therefore to be expected in infections with the toxic Shiga bacillus than with the feeble-toxin-producer Flexner bacillus.

FLETCHER and JEPPS gave serum to 246 Asiatic cases (Flexner 226; Shiga 20), death rate 30·1 per cent.: while in a series of 329 Asiatic cases (Flexner 318; Shiga 11) treated by salines only, the death rate was 30·4 per cent. They found failure of serum not due to exhibition late on in the disease, to insufficient dosage, or to deterioration, but rather to ill-nourishment of the patients and co-existing disease, e.g., malaria.

Of the authors' sixteen cases here described three were given the equivalent of 200 cc. and 13 that of 100 cc. There was no selection of cases. The patients were of Tamil and Chinese race, and both the serum and control (saline) series contained equal numbers of these races. Very concentrated serum was given [presumably subcutaneously, but the authors omit injection route]. All cases suffered pain and tenderness at site of injection for a few days; and one patient who had equivalent of 200 cc. developed urticaria, fever, pain in knee and shoulder joints, and oedema. Bacteriologically the serum had little effect save that in 5 cases cultures became transiently negative for a few days. A similar result occurred in only two of the control cases. Serum was not followed by any striking change in the cellular content of the bowel exudate, and as compared with the controls disappearance of pus cells from faeces was not accelerated. The time elapsing between admission to hospital and final disappearance of mucus from stools averaged 10·8 days for serum cases, and 14·4 days for the control cases. Clinically many cases were undoubtedly benefited by the serum; abdominal tenderness and tenesmus decreased. The serum treatment of *B. dysenteriae* Flexner infections in the Asiatic

is not followed by magic improvement of general condition and dramatic estoppage of flux; but the patient is usually rendered more comfortable and the course of the disease somewhat shortened, if the case is not gravely debilitated and exhausted.

H. M. H.

Fletcher (William) & Kanagarayer (K.). **The Bacteriophage in the Treatment of Bacillary Dysentery of the Flexner Type.**—*Bull. Inst. Med. Res. Federated Malay States.* 1927. No. 3. 10 pp.

Dysentery is one of the three most deadly diseases in the Malay States, the other two being malaria and tuberculosis. Bacillary dysentery is three times as common as amoebic and is nearly all due to infection with organisms of the Flexner mannite-fermenting group; Shiga infections are rare. The bacteriophage was received from Dr. F. d'Herelle, and was administered to 22 men suffering from Flexner dysentery. Daily examination of faeces showed that dysentery bacilli persisted in stools of six patients for more than 10 days after beginning the treatment. In eleven cases the bacilli were found up to the sixth day but not after the eighth. In five cases they were not found after the fourth day. Three patients died during treatment, and healthy dysentery bacilli were isolated from their intestines after death. All the dysentery bacilli isolated from all the patients after bacteriophage treatment were normal in appearance, growth, agglutination, and carbohydrate reactions. The bacteriophage proved more virulent for Andrewes's type strains, *in vitro*, than for freshly isolated strains. Its action *in vitro* was much stronger on Shiga than on Flexner bacillus. In a single case of Shiga dysentery, no dysentery bacilli were isolated after the second day of treatment by bacteriophage. The authors note that though this sample bacteriophage had no apparent influence on the course of the 22 Flexner dysentery cases or upon the infecting bacilli, yet it is possible that in the future a bacteriophage may be prepared which will be as potent in curing Flexner as it is said to be in curing Shiga dysentery.

H. M. H.

Kobayashi (Kengoro). **On One Degenerated Form of Shiga-Dysentery Bacillus caused by Bacteriophage.**—*Sei-I-Kwai Med. Jl.* 1927. Feb. Vol. 46. No. 2. English summary pp. 8–9. [In Japanese.]

The degenerated organism showed more or less the morphological appearance of a streptococcus. It stained badly and both Gram-positive and Gram-negative. Growth was difficult but remained constant in character over more than 100 generations. The carbohydrate fermentations corresponded to those of the dysentery bacillus and not to a streptococcus. Specific dysentery serum gave only slight agglutination, and that with streptococcus serum was imperfect; but complement fixation tests were positive to dysentery and negative to streptococcus serum. Its virulence was lower than that of the original strain.

W. F. Harvey.

Dungal (N.). Wie vergärt der Shiga-Bazillus? Zugleich ein Beitrag zur Biologie des *Bacillus metacoli* (Morgan). [**Fermentation of the Shiga Bacillus. Biology of** *B. metacoli* (**Morgan**).] *Cent. f. Bakt.* I. Abt. Orig. 1927. Vol. 102. No. 4-5. pp. 218–224. [7 refs.]

The investigation has not only been carried out over a large range of carbohydrates but places on record variations and degrees of fermentation. The fermentations of *B. metacoli* (Morgan's bacillus), which are not well known, are also given: it, like the Shiga bacillus, does not ferment mannite, but is at once differentiated by its gas producing power and its positive indole reaction. Fourteen strains of B. Shiga, all indole-negative, were investigated over a period of 30 days in the medium—Peptone 1, Liebig's extract 1, sod. chloride 0·5, sugar 0·5, water 100 of pH 7·4, with bromthymol blue as indicator. The results were as follows:—

+	glycerin	+	galactose
O	erythrite	+	mannose
O	adonite	O	lactose
O	dulcite	+	saccharose
O	mannite	+	maltose
O	sorbite	+	trehalose
O	inosite	O	raffinose
O	xylose	O	melecitose
O	l-arabinose	O	dextrin
O	d-arabinose	O	inulin
O	rhamnose	O	starch
+	glucose	O	amygdalin
+	laevulose	O	salicin

Notes.—glycerin, late, 5–9d.: sorbite, all except one of 4d., non-fermenters: lactose, all non-fermenters except 3 of 10, 16 and 19d.: saccharose, fermentation in 12 to 20d., with exception of 4 non-fermenters: maltose, in 4 to 18d. except 2 non-fermenters: trehalose, in 1 to 3d. except one non-fermenter: dextrin, 7 non-fermenters and 7 showing some fermentation in 4 to 20d.: starch, all non-fermenters except one of 4d.

W. F. Harvey.

Mann (W.). Vergleichende Untersuchungen ueber den Wert des Nissleschen Anreicherungsverfahrens für Bazillen der Typhus- und Ruhrgruppe im Stuhl. [**Value of the Nissl Enrichment Method for Typhoid and Dysentery Bacilli in Stools.**]—*Muench. Med. Woch.* 1927. May 6. Vol. 74. No. 18. pp. 759–761. [6 refs.]

This is a comparison of the Nissl method with one in which a variety of media is used. The former method is described as follows:—

(1) Prepare for 10 stools tests:—sterile ox bile 65; pot iodide 1; 1 per cent. malachite green 4; 3 per cent. caffein freshly dissolved at under 80° C., 30; (2) distribute in quantities of 10 cc. in test tubes of 10 to 20 mm. diameter; (3) make a uniform suspension of ½ to 1 cc. undiluted stool in each tube; (4) incubate for not more than 12 to 15 hrs. at 37° C.; (5) remove tubes carefully without shaking; (6) transfer a large loopful or 2 smaller loopfuls to an Endo plate of not less than 15 cm. diameter; (7) rub well over the surface.

The second process is described as:—

(1) Make a uniform suspension with a piece of the test stool about the size of a pea in 5 cc. normal salt solution; (2) sow 2 to 3 small loopfuls of this suspension on a malachite green-saffranin- pure blue (reinblau) plate

(3) rub well over the plate with a glass spatula ; (4) sow a second blue plate with the same glass spatula and after that two Endo plates ; (5) examine the two Endo plates after 24 hrs. incubation ; (6) examine only the second of the two pure blue plates, unless the first also gives *discrete* colonies, after 48 hrs. incubation ; (7) test suspicious colonies with a mixed typhoid-paratyphoid B agglutinating serum ; (8) complete the examination of agglutinating organisms.

In all 791 examinations of stools from some 500 cases were carried out. The second process proved superior to the first but the first gave a larger total of positive colonies and greater inhibition of the *pyocyaneus* group of organisms.

W. F. Harvey.

PETRIE (G. F.). **On the Constitution of Dysentery Toxin and its Relation to the testing of Antidysentery Serum.**—*Brit. Jl. Experim. Path.* 1927. June. Vol. 8. No. 3. pp. 183–196. [19 refs.]

A provisional unit representing a definite amount of standard serum has already been established. Much less certainty attaches to the most suitable test toxin to be used in titration. Difference of opinion is likewise expressed on the fundamental question whether dysentery toxin is simple or a mixture of toxin and toxoid. Broth toxins were those investigated and were prepared as follows :—

(1) Sow 500 cc. of Berna peptone broth of reaction pH7·8 with the dysentery bacillus ; (2) incubate 5 weeks ; (3) add toluol ; (4) centrifuge at time of testing ; (5) pipette off the supernatant fluid for use.

The M.L.D. of the toxin was determined by intravenous injection of 15–20 gm. healthy mice of uniform breeding stock and of rabbits averaging 1,200 gm. weight. The L+ and LO doses of a toxin were determined in mice by intravenous injection of a mixture of toxin and 1-300 cc. 1 per cent. Copenhagen standard dried serum.

Altogether 17 strains of dysentery were tested and comparison was made at the same time with toxin No. 222, a filtered broth toxin, No. 203, a sulphated toxin, Copenhagen dry standard toxin, and Paris Pasteur Institute dry toxin I.P. The results are summarized : (1) Mice gave more regular results than rabbits and are to be preferred for routine titration of antidysentery sera ; (2) the rabbit is 20 times more sensitive per gm. of body weight to toxin than the mouse ; (3) a satisfactory degree of regularity was obtained with toxin-serum mixtures given intravenously to mice ; (4) dysentery toxins contain toxoid derivatives in varying proportions and the toxoids are considerably less in broth toxins than in dry bacillary or sulphated toxins ; (5) broth toxins can be used as test toxins for routine titration of sera, provided that they are occasionally checked with standard serum and a control series of tests with standard serum would seem to be unnecessary.

W. F. Harvey.

TORIKATA (R.) & FUJIMOTO (A.). **On the Cocto-Immunogen of the Dysentery Bacillus (Shiga Type).**—*Jl. of Immunology.* 1927. Feb. Vol. 13. No. 2. pp. 123–159. [26 refs.]

It is difficult to immunize rabbits with Shiga dysentery bacilli owing to their great toxicity. Cocto-immunogen, which is a boiled suspension of bacteria or of bacterial filtrate, was used on rabbits. The optimum time of boiling is of considerable importance in relation to Torikata's

"impedin phenomenon" theory. This optimum time was one hour for filtrate; most of the experiments were performed with vaccine prepared by 20 minutes' boiling. The toxicity of the vaccine thus prepared was reduced for rabbits to about one-hundredth, and animals treated by intravenous injection became resistant to infection or intoxication by B. Shiga. Their serum showed both bactericidal and antitoxic power.

W. F. Harvey.

Zoeller (Chr.). L'immunité antidysentérique, une forme de l'immunité antitoxique. [**Antidysenteric Immunity, a Form of Antitoxic Immunity.**]—*Bull. et Mém. Soc. Méd. Hôpit. de Paris.* 1927. Mar. 17. Year 43. 3rd Ser. Vol. 51. No. 9. pp. 332–336. [2 refs.]

There is described here an intradermic reaction which is regarded as similar to the Schick reaction in diphtheria and the Dick reaction in scarlet fever. In the test 0·2 cc. of a 1–100 or 1–150 dilution of toxin, according to strength, is injected. Twenty four hours later a temporary redness is observed at the point of inoculation, but this is not the specific reaction. That does not appear until the 3rd or 4th day, and consists of an ecchymotic tinge slowly becoming more pronounced and leading to the formation of a small black slough which heals very slowly. A negative reaction is taken to indicate the presence of sufficient antitoxin in the blood to neutralize the toxin. Such antitoxin may have been developed from slight unnoticed attacks of dysentery, from a well-marked attack, or from vaccination. Ten persons were tested, six of whom had had a Hiss dysentery infection and four a severe Shiga infection. The reaction was positive in all the Hiss cases and negative in 3 out of 4 of the Shiga cases. Although suggesting this, it is not yet possible to say that the positive reaction is indicative of susceptibility to Shiga dysentery. For one thing immunity to Shiga dysentery may not be restricted to antitoxic immunity. Thus there are described also the local cellular immunity and the bacteriophage immunity to this infection.

W. F. Harvey.

Fulton (Marshall N.) & Berry (George P.). **Agglutination Reactions in Rabbits following Oral Vaccination with** *Bacillus dysenteriae.*—*Amer. Jl. Dis. Children.* 1927. May. Vol. 33. No. 5. pp. 714–716. With 2 charts in text. [2 refs.]

From the point of view of infectiousness and mode of transmission bacillary dysentery is in many ways comparable to typhoid fever; but there is no evidence that under usual conditions it is transmitted through milk and water supplies. It is more likely that it is directly spread from patient to patient and from house to house by flies and the hands of attendants. The disease is widespread and its infectious nature little recognized so that its control by the usual methods of early detection and isolation, and observation of contacts, is hopeless. Prophylactic immunization of infants, if possible, is therefore of great importance. The majority of infections are caused by Flexner type bacilli. Observations were made on 476 white infants, under 2 years of age, artificially fed. A vaccine containing 400 millions each of five strains of Flexner dysentery bacilli (a 2,000 million bacilli gross total)

was given every month, in the milk feed on 3 successive days to 107 of the infants. The frequency of dysentery among these infants was identical with that among the control 369.

This orally administered vaccine did not therefore protect against dysentery. The authors note that the production of agglutinins in rabbits by vaccination technique is no guarantee that it will procure protection in human beings. H. M. H.

Wilkins (Lawson). **An Unsuccessful Attempt to protect Infants against Dysentery by the Oral Administration of Vaccine.**—*Amer. Jl. Dis. Children.* 1927. May. Vol. 33. No. 5. pp. 711–713. [8 refs.]

The vaccine was made from a 24 hours' growth of each of five strains of Flexner dysentery bacilli, and then suspended in 0·85 per cent. saline solution, so that 1 cc. contained a billion organisms. The vaccine was fed to rabbits through a syringe after their serums had been examined for agglutinins against the strains used. Macroscopic agglutination tests with formolized broth cultures were employed. Ten rabbits so fed showed agglutinating power in the serum. Dosage was important—increasing the dose procurring distinct response when that had been absent with smaller doses. 10 cc. of the vaccine ingested by the authors and five other individuals on three successive days produced no agglutination response in dilutions higher than 1 in 20, and that in only two strains. H. M. H.

Vaz (Eduardo). Sobre o preparo da vaccina antidysenterica " per os." (Primeira memoria.) **Preparation of Antidysenteric Vaccines for Use per os.**—*Mem. Inst. de Butantan.* 1926. Vol. 3. No. 1. pp. 84–94. With 1 plate. [29 refs.] French summary p. 95.

Previous work by the author on rabbits showed the need for diminishing the toxicity of the killed Shiga organism, if this vaccine was to be used by oral administration in man. A wholly satisfactory immunization of rabbits, with 100 per cent. success, has been attained by the use of a 21-day bouillon culture of B. Shiga to which 0·25 per cent. of formalin was added. This formalinized culture immunized, in a dose of 20 cc., against the test of parenteral infection with both homologous and heterologous strains of the living organism. In practice it is very much easier to make vaccine on a large scale for oral administration by the simple addition of formalin to bouillon cultures than from agar cultures, which have to be brought into suspension, dried, weighed and converted into tablets. W. F. Harvey.

Kauntze (W. H.). **Polyvalent Vaccine in the Prophylaxis of Bacillary Dysentery in East Africa.**—*Kenya Med. Jl.* 1927. Mar. Vol. 3. No. 12. pp. 342–348; and *Kenya & East African Med. Jl.* 1927. Apr. & May. Vol. 4. Nos. 1 & 2. pp. 17–35. With 3 charts; pp. 51–62.

An extensive and very valuable investigation, fully described and critically discussed. The author's conclusions are :—

1. The results of inoculation of 12,000 porters [in 1916 and 1917] with 1 cc. of the polyvalent dysentery vaccine*, and of 47,636 porters with 4 cc.

* As described in a former paper this consisted of 3 strains of B. Shiga, 2 of B. Flexner and 3 of B. Morgan [see this *Bulletin*, Vol. 17, p. 23].

of the same vaccine, do not show that any improvement in the death rate from dysentery took place in consequence, even when allowance is made for the fact that these porters were serving under the worst possible conditions of climate and country.

2. There is some evidence from other observers that inoculation of contacts and all persons liable to come into contact with infection in a dysentery epidemic cuts short the spread of the disease.

3. From the porters inoculated with vaccine no data are available to judge of the actual effect of the vaccine on the incidence of dysentery amongst them, but it may be presumed that the death rate from the disease forms a fairly good index to this and that it may be concluded that the vaccine had no appreciable effect on it, with the reservation that a short-lived protection may result immediately after inoculation and not be reflected in the death rate owing to the disease in new and previously healthy recruits being usually of mild character and low mortality.

4. There is evidence that in any body of natives, however physically strong in appearance, a considerable number are susceptible to dysenteric infection, while the remainder show varying degrees of immunity. Given then life under conditions predisposing to the disease, there is a rapid elimination of the susceptible individuals with a resultant rapid rise and fall of the death rate, and the reduction of the batch to those men with more or less immunity to infection and showing a more or less constant death rate maintained by those persons whose immunity has been undermined by conditions depressing the general level of health, and has failed in the face of sufficiently massive infection.

5. As practical conclusion—the vaccine should not be given to guard against the mere chance of dysenteric infection, unless one has opportunity to revaccinate at frequent intervals. On the other hand, in face of an outbreak of dysentery amongst a company of people, the inoculation of all contacts and persons liable to infection, is likely to prove a valuable prophylactic measure.

6. Further statistical evidence is required, showing the period during which the vaccine protects, if any ; the influence of two or more doses at ten day intervals on the immunity to dysentery produced ; the dosage that should be given at any one time to gain the maximum amount of protection : and the manner in which the vaccine acts in producing immunity.

The author notes that in spite of the evil reputation of B. Shiga vaccines for toxicity, in none of the thousands inoculated were any more ill effects seen in Europeans or natives than follow the prophylactic use of typhoid vaccine.

As regards the problem of immunity in bacillary dysentery this investigation leads the author to conclude that :—

1. Employed prophylactically the protection conferred, if any, is of a very temporary character, but probably useful in time of epidemic.

2. Employed therapeutically the vaccine is of value, in reducing death rate, and in diminishing severity of attack.

3. In a patient suffering from dysentery effect of vaccine is immediate, contrary to the generally accepted idea as to the action of a vaccine.

4. To be of any use, therapeutically at least, and probably also prophylactically, the dosage must be comparatively large.

In addition the following points, bearing on the question of immunity, are noted by the author :—

1. In most dysentery cases seen, a disorder of liver function occurred : commonly as an excess of bile secretion in the early stages of the disease, and as a deficiency in the later.

2. Agglutination reactions of the serum were most unreliable evidences of infection and of immunity ; they appear only for a short time in the blood.

3. In any group of men exposed to conditions causing lowered vitality and presenting large opportunities for infection with dysentery organisms, a considerable number will be found to be very susceptible, and by their contracting the disease, a varying number of men are left who possess a certain degree of immunity, either naturally present from the first, or acquired as the result of an obvious or an unnoticed attack of dysentery from which recovery has taken place.

The paper closes with an interesting discussion of the problems of immunity in dysentery in the light of BESREDKA's later researches and opinions, which do not, in fact, solve the puzzles in the dysentery problem.

H. M. H.

OTTEN (L.) & KIRSCHNER (L.). **On Oral and Parenteral Vaccination against Bacillary Dysentery.**—*Meded. Dienst d. Volksgezondheid in Nederl.-Indië.* 1927. Pt. 1. pp. 97–143. [Numerous refs.]

—— & ——. Ueber enterale und parenterale Immunisierung gegen bacilläre Dysenterie (Shiga-Kruse).—*Ztschr. f. Hyg. u. Infektionskr.* 1927. Apr. 29. Vol. 107. No. 2. pp. 314–356. [Numerous refs.]

The introduction to the actual experimental work given by these authors is a very full account of the present position with regard to oral immunization in general. It treats especially of the theory of localization of immunity and of infection to definite tissues or organs. Statistical results of immunization *per os* are also considered and deservedly strong criticism is passed upon their very unsatisfactory character. The criticism indeed is not applicable merely to statistics of oral immunization but also to most immunization procedures; it leads the authors to emphasize the need for statistical investigation by "alternate case" methods. In their own experimental work on oral immunization they have used a 0·5 per cent. carbolized vaccine the organisms of which had been grown upon agar and sterilized at 60° C. Both in the enteral and the parenteral immunization 3 doses, each one larger than the preceding, were given at weekly intervals. These three successive doses were, for oral immunization as low as 5, 10 and 20 thousand million organisms and as high as 40, 40 and 80 thousand million respectively. Each dose was administered to the experimental rabbit by drops from a pipette into the open mouth. These animals were tested 3 to 6 weeks after their last immunizing dose with living bacilli, some intravenously and some orally. Besides the investigation into the possibility and utility of oral immunization against dysentery the authors have carried out research into the relative utility of a formolized heated suspension of dysentery bacilli and a formolized heated dysentery toxin (anatoxin) for parenteral (subcutaneous) immunization. The conclusions to this paper give an excellent summary of the range of subjects considered, the views of the authors, and their own results. These are :—

1. The local immunity of the intestine is not merely a matter of theoretical interest but is practically important in its relation to the pathogenesis of acute infectious intestinal diseases.

2. BESREDKA's experimental work is incomplete and does not afford sufficient foundation for the application of oral vaccination to man.

3. BESREDKA's main argument for a local immunity, the diminution and disappearance of antibodies from the blood with repetition of the oral immunizing dose, finds no support in the results obtained by other authors.

4. The statistical data, particularly those of VAILLANT, are absolutely insufficient to demonstrate the utility of oral immunization or even to render possible any comparison with the value of the subcutaneous methods.

5. It is possible to immunize rabbits *per os* against dysentery with a suspension of bacilli killed at 60° C.

6. This oral immunization with a bacillary suspension gives rise to immunity in the rabbit to both enteral and parenteral infection, which is higher than that obtained subcutaneously with so toxic a vaccine, but only by the use of quantities 50 to 100 times the subcutaneous dose.

7. With repeated doses of vaccine *per os* the serum of these rabbits shows an increasing agglutination titre and also contains antitoxin. This would support the view that a general immunity is produced.

8. It is possible to obtain a higher degree of immunity subcutaneously in rabbits by the use of larger doses of a suspension of bacilli killed at 60° C. and rendered atoxic by means of formalin and heat or of a bouillon culture filtrate rendered atoxic in the same way (anatoxin).

9. Subcutaneous inoculation possesses advantages over the uncertain and difficult oral immunization, especially for large scale immunization of a native population.

10. The formolized-bacillary vaccine is preferable, so far as reaction goes, to anatoxin even though it does possess less antigenic potency.

W. F. Harvey.

WEISE (Kurt). Ueber die aktive Schutzimpfung gegen Ruhr im Säuglings und Kindesalter. [**Dysentery Vaccination in Infants and Children.**]—*Monatsschrift f. Kinderheilk.* 1926. Vol. 33. pp. 1–11. [30 refs.]

Immunization *per os* is most uncertain. Passive immunization, with which is to be included the use of a serovaccine, is of much too short duration and apt to leave a serum anaphylaxia. Active inoculation with killed Shiga-Kruse bacilli is not practicable owing to the production of local and general symptoms. The author tested a vaccine prepared from Flexner and Y strains, administered intracutaneously. The symptoms produced were redness and infiltration, reaching their maximum in 24 hours and disappearing in 2 days time. He concludes from the evidence that 2 injections of 0·1 cc. killed Flexner group bacilli have proved to be effective in the prophylaxis of dysentery.

W. F. Harvey.

MARREY (Paulo) & VAZ (Eduardo). "Immunização per os." Estudo sobre as differenças de poder pathogenico, toxico e immunizante de 4 amostras de B. de Shiga. [**Oral Immunization. Difference in Pathogenicity, Toxicity and Immunizing Power of 4 Shiga Strains.**]—*Mem. Inst. de Butantan.* 1926. Vol. 3. No. 1. pp. 77–82. [3 refs.] French summary p. 83.

Pathogenic power is defined as the effect produced by living organisms and toxic power as that due to dead organisms. For immunization, dead organisms are used. Whatever the mode of administration, oral, intravenous or subcutaneous, there was little apparent difference in the pathogenic action of the 4 strains. The toxicity on the other hand of cultures on agar, killed by heat, and given by the mouth was very variable: some were highly toxic, others atoxic, some capable of being used without danger for immunization and others not. The immunizing power of the strains likewise showed great variability. Two of them gave solid protection against an intravenous testing dose.

Although equally variable, there was no relation found to exist between toxic power and immunizing power. The research points to the probable value of oral immunization in man and also to the necessity for careful selection of the strains for this purpose.

W. F. Harvey.

Blanc (Georges) & Caminopetros (J.). De la vaccination antidysentérique chez l'homme par inoculation intramusculaire de bacilles de Shiga vivants. [**Intramuscular Vaccination with Living Shiga Bacilli.**]—*C.R. Soc. Biol.* 1927. Mar. 4. Vol. 96. No. 8. pp. 509–511. [1 ref.]

In agreement with Nicolle and Conseil the authors hold that vaccination with living organisms is more effective than any other method. The difficulty in the case of *B. dysenteriae* Shiga was its great toxicity. When they found that this organism was practically not toxic for man if uncontaminated with water of condensation, they were able to prepare a satisfactory vaccine. Cultures of a very toxic strain were grown in large tubes of specially dry agar and incubated for 24 hours in the vertical position. The growth was removed, all except the moist lowest portion, and suspended in 3 per cent. potato starch. The injections were made on the day of preparation, intramuscularly, in doses of 4 to 6,000 million. Only a slight infiltration at the point of inoculation resulted and it disappeared in 3 to 4 days; there was no troublesome elevation of temperature. They conclude, from the excellent results which they have had in children, adults and aged persons, that there is neither danger nor inconvenience from the use of living dysentery vaccine.

W. F. Harvey.

Izawa (Tomozane). [**Studies on Ohhara's Bacillus, together with a Notice on the Causative Agent of "Ekiri."**]—*Kei-O Igaku* (*Jl. Kei-o Med. Soc.*) 1926. Aug. Vol. 6. No. 8. [Summarized in *Japan Med. World.* 1927. Mar 15. Vol. 7. No. 3. pp. 80–81.]

From cases of dysentery, Ekiri, and other diarrhoeas in adults the author recovered a bacillus and identified it bacteriologically and immunologically as Ohhara's. Further investigation identified it also with Minoda's para-dysentery bacilli A and B. Bacteriophages peculiar to these species were demonstrated.

Although Ohhara's bacillus apparently constitutes a new species, its biology, as determined by animal experiments and the production of bacteriophage, would place it as a variety of dysentery bacillus. The author proposes for it the name *B. dysenteriae* Ohhara.

He believes that there are probably other still unknown causative agents of Ekiri. The bacteriology of this disease places it rather among the dysenteries.

H. M. H.

McCall-Smith (N.) & Fraser (D. M. M.). **Sporadic Dysentery in England.** [Correspondence.]—*Brit. Med. Jl.* 1927. Apr. 2. pp. 645–646.

The authors describe an outbreak of dysentery in a small group of children isolated in a sanatorium on account of whooping cough. Four of the cases gave a culture of *B. dysenteriae* Y. Two possible sources of origin were: (1) a visitor lately from abroad convalescing from dysentery was in close contact with the first case, a boy 4 years old; (2) this boy was born and spent nearly two years in India. He may be a carrier.

H. M. H.

Joseph (G. W. N.) & Manson (J. S.). **Sporadic Bacillary Dysentery in England.**—*Brit. Med. Jl.* 1927. Mar. 26. pp. 563–564.

An account of two outbreaks of dysentery or pseudo-dysentery, sudden, and limited in each case to one household; affecting chiefly children, and thought at first to be some form of food poisoning. Post-mortem bacteriological, and other investigation, however, excluded food poisoning: a bacillus of the dysentery group of the Flexner Y type was isolated. The serum of one case agglutinated *B. dysenteriae* Y.

H. M. H.

Mixed and Unclassed Dysentery.

Kligler (I. J.) & Weitzman (I.). **Observations on Dysentery in Palestine.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1927. July 11. Vol. 21. No. 1. pp. 49–56. With 2 graphs.

The authors summarize their own interesting and valuable paper as follows:—

"The current reports from diagnostic laboratories in the country indicate that the common prevailing form of dysentery is amoebic in origin. A study of the material sent to the M.R.U. laboratory, and examined by an improved technique, shows that this is not the case.

"Such examination, during 1926, of over 1,000 stools, of which 307 were positive, gave the following results:

"1. Of the positive dysenteric stools 65 per cent. were bacillary and 35 per cent. amoebic.

"2. The distinctive epidemic character of the dysenteries in Palestine is to be ascribed to bacillary and not to amoebic dysentery. The former has two peaks, one in June and the other in November; while the latter has the usual uniform prevalence, higher during the summer and early fall and lower in the winter.

"3. The results reported by other laboratories are most probably due to mistaking other cells for amoebae and to the difficulty usually experienced in the cultivation of dysentery bacilli.

"Our results warrant the conclusion that approximately two-thirds of the cases of dysentery in Palestine are due to bacillary infections."

H. M. H.

Juhl (Ernst). Yatrenbehandlung bei tropischen Dysenterien der Kinder. [**Yatren in Tropical Dysentery in Children.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1927. May. Vol. 31. No. 5. pp. 237–240.

The author gives a general description of his clinical experience during two years in Matagalpa, Nicaragua, where, he writes, "tropical" dysentery is rife. It is not all amoebic. In spite of similarity of symptoms, the cause varies; besides the amoebic cases, there are many others due to Lamblia, Trichomonas, or *Bacillus coli*. In children multiple infections are common, and in some gravely ill children besides amoeba or Trichomonas, *Ancylostoma duodenale* is present.

He admits (regretfully) that confirmation of diagnosis, and control of treatment, by microscopical examinations, were not always possible—and he therefore disclaims exact scientific value for his observation. He states, however, that differential diagnosis by microscope is not absolutely necessary, for "Yatren 105" is a drug that ensures success in all these dysentery cases. He emphasizes his opinion that for the worst type of case in children, yatren is the sole drug that will prevent a fatal termination. In cases wasted and exhausted from the frequent

and long-standing bloody diarrhoea, emetine had had no beneficial effect. In pure amoebic infections yatren is entirely successful. In children one can count on its bringing complete cure—if it be not too soon discontinued. Lamblia, Trichomonas, and *Bacillus coli* infections are more resistant. Yatren procures improvement, but not complete cure. At first, he gave the yatren to children in 2 per cent. clysma; infants took it easily and retained it well; but soon this was kept for the very severe cases. In all others yatren was given in powder form (0·05 0·1) three times daily, in water, or to older children in capsules, for 6 days; discontinued for 5–8 days, and then given again for 3–5 days. This course was repeated two or three times for severer cases. It was found that yatren often procured expulsion of round-worms. In ankylostome infections, treatment with "Tetrachlor" was given after the dysentery symptoms had disappeared.

H. M. H.

Dircks-Dilly (J.) & Bonnel (F.). Sur un cas de balantidiase. [**A Case of Balantidiasis.**]—*Jl. Méd. de Bordeaux.* 1927. May 25. Vol. 104. No. 10. pp. 405–406. [10 refs.]

An Algerian soldier after 3 months service in Syria developed a chronic diarrhoea for which he was invalided to Bordeaux. The diarrhoea had lasted for some 2 months and the patient was wasted. No malarial parasites were found in the blood. The stools were free of blood or mucus. Their examination revealed *Tetramitus mesnili*, and numerous *Balantidium coli*, but no amoebae. The patient had already received stovarsol treatment without benefit. The authors propose to try thymol.

They quote Brumpt, that hundreds of thousands of examinations, during recent years, of the stools of healthy and sick persons all over the world, have shown both the wide geographical distribution of *Balantidium coli*, and its extreme rarity as a human parasite. Dopter (1924) reviewing all the then known cases of human balantidiasis, enumerated 232 (143 in Europeans). Most cases have been recorded in Russia (52), Sweden (30), and Germany (26). No case has yet been noted in England. The authors think their patient, though coming from Algeria, was in fact infected in Syria.

H. M. H.

Ongkiehong (H. F.). Een geval van infectie met *Balantidium coli*, behandeld met santonine. [**Case of *Balantidium coli* Infection treated with Santonin.**]—*Geneesk. Tijdschr. v. Nederl. Indië.* 1927. Vol. 67. No. 2. pp. 326–327.

A case of Balantidium infection causing dysenteric symptoms in a Balinese boy of 8 years. Administration on two consecutive days of 15 mgm. santonin with 30 mgm. calomel, 3 times per day, resulted in definite disappearance of the parasites with clinical recovery of the patient. Poor hygienic conditions in the patient's home and occasional contact with pigs may account for the infection.

W. J. Bais.

de Mello (Froilano). Considerações sôbre alguns casos de disenteria amebiana e da emetino-resistência das amebas.—*Bol. Ger. Med. e Farmacia.* 1926. Jan.–Sept. Vol. 11. Nos. 1–9. pp. 30–33.

Muhlens (P.). Progresos obtenidos en la terapéutica de la disentería amibiana de sus complicaciones.—*Repert. Med. y Cirug.* Bogota. 1927. Jan. Vol. 18. No. 4 (208). pp. 182–193. [2 refs.]

PELLAGRA.

LAMBERT (Alexander C.). **Pellagra. A Case from Honan.**—*China Med. Jl.* 1927. Jan. Vol. 41. No. 1. pp. 1–6. With 1 coloured plate. [6 refs.]

Though cases of pellagra have been reported from various parts of China and also of Korea, the author states that for the last twenty years he has been on the look-out for the disease with only recent success. In Honan, during the summer of 1922, several patients were seen with acute erythema of the hands. None of these cases could be followed up and it was not until June, 1926, that the present case came under observation. The following is a brief résumé :—

The patient was a prostitute who had lived in Honan for the past three years. The present illness began in May 1925, with an abscess in the perineum leaving a recto-vaginal fistula. During the summer there was roughening and discolouration of the skin over the elbows. In January, 1926, fever, pains and diarrhoea began, followed in March by a dermatitis on the hands accompanied by a burning sensation. In June the patient came to hospital. She was then anaemic, had a staggering gait, was apathetic and presented a typical rash on the hands, face and elbows, (A coloured plate illustrates the rash on the hands.) The tongue was glazed and red at the edges and tips. Diarrhoea with muco-pus was present and the discharge from the fistula showed the presence of amoebae.

Treatment with N.A.B. and bismuth was instituted as syphilis was suspected. (The Wassermann reaction could not be done at that time, but was found to be negative at a later period.) Emetine had no effect upon the diarrhoea which was only partially controlled by tannic acid enemata.

For several months before admission the patient's diet had been deficient, consisting mainly of wheat flour with vegetables. She seldom or never had meat, neither did she eat millet or maize. During her hospital stay she was given a mixed generous diet " consisting of fresh pork, chicken, vegetables, rice millet and milk." In spite of treatment she made no marked improvement. The rash diminished but the diarrhoea continued and the mental trouble increased. The patient was removed from hospital by her friends and died later.

In discussion of the case the author asks, " what is the underlying protein deficiency which can produce pellagra in a rice-eating section of China such as the Yangtse Valley and also in a wheat and millet eating area such as Northern Honan ? " He quotes LEE (*Nat. Med. Jl. of China*, Ap. 1925. Vol. 11. No. 2) " If an adequate supply of protein in the diet has such an important bearing on the incidence of pellagra it becomes extremely puzzling why we apparently see so little of this disease in China." LEE suggested that the soy bean was the important factor, as being the source of tryptophane and lysin.

The following description of the local diet is given :—

" There are two varieties of diets in this sector of Honan, in which the principal cereals are wheat and millet. In one the millet predominates and in the other the wheat. Added to both these diets are vegetables and sprouted beans, but meat only rarely. Both the wheat and millet are grown locally. Rice is grown further South and is not much eaten by the local populace which is mainly agricultural. Wheat is ground into flour and consumed in the form of macaroni boiled with vegetables, and as steamed unleavened bread. Millet is not ground but is cooked in much the same fashion as rice, vegetables being added to the resulting thick porridge."

A. Douglas Bigland.

CANTOR (S. J.). **Pellagra: a Clinical Study, with Notes on Some Cases.**—*Med. Jl. Australia.* 1927. May 14. 14th Year. Vol. 1. No. 20. pp. 713–715. [1 ref.]

After a résumé of the chief clinical appearances and probable aetiology of pellagra the following cases are described :—

1. *Female aged* 42—Conjunctivitis for some time. In March, 1927, typical pellagrous rash appeared on the face, neck, ears and forearms. Keratomalacia was present, together with mental depression and sore tongue. No mention of diarrhoea.

2. *Female aged* 69—Typical rash on face. In former years had been depressed and suicidal. Probably a recurrent case.

3. *Female aged* 36—This patient was in a mental hospital and it was surmised that she had been transferred from an orphanage, where she had been for fifteen years, for mental defect. On admission in 1913 there was a rash on the face and chest. She improved considerably in all ways but in 1926 she again had a dermatitis, suggestive of pellagra. The condition was cured in a few weeks by diet.

4. *Male aged* 68—Melancholia for a prolonged period. In September 1926 a typical butterfly rash appeared on the face and a similar symmetrical dermatitis on the scrotum. Indigestion and spongy gums were also present. The diet had consisted of " white bread, a comparatively large amount, rice, butter (preserved), jam, some vegetables of a rather coarse quality and meat. When the latter was of the corned variety it was generally refused. No eggs entered into the dietary and milk was not available." When the diet was improved by including eggs, fruit and milk, rapid recovery took place.

5. *Male aged* 60—A chronic dement. In September, 1926, rash appeared on the face and hands. The gums were spongy and there were some gastric symptoms. The general health remained good and the dermatitis soon disappeared. The patient was never exposed to the sun's rays.

[These cases appear to be slight pellagra, but the other symptoms of the disease, such as diarrhoea, are strikingly absent.]

A. D. B.

SHELLEY (Horace M.). **Pellagra in Nyasaland.** [Correspondence.]—*Lancet.* 1927. Feb. 5. pp. 312–313.

This is a letter replying to that of Dr. STANNUS [*ante* p. 287]. Dr. Shelley points out that he was unaware that cases of pellagra had previously been reported in the general population of Nyasaland. He again argues that the disease is due to the action of a toxin upon the body in general and upon the thyroid gland in particular. The presence of peripheral neuritis in pellagra is stressed. The influence of the sun's rays in causing the distribution of the rash is negatived and Dr. STANNUS's suggestion that the scrotal rash is due to warmth and moisture is met by the question, " why are the axillae, which are both moister and hotter, exempt from the eruption ? " A typical pellagrous dermatitis may occur over the great trochanters and buttocks due to friction of the loin cloth, and a patient who had been in bed for eight weeks developed a dermatitis, although there had been no exposure to direct sunlight.

The slight oedema which may occur in pellagra does not pit on pressure and is noted in patients who have had many attacks. The soreness round the angles of the mouth, mentioned by Dr. STANNUS, is not confined to pellagrins.

In conclusion the writer repeats his statement that " in pellagra there is a deficiency in thyroid secretion, a neuritis of certain nerves in preference to others and skin lesions corresponding to the distribution of those nerves."

A. D. B.

White (E. Barton) & Hadfield (Geoffrey). **Observations on Pellagra with an Account of a Case.**—*Bristol Med.-Chirurg. Jl.* 1927. Vol. 44. No. 163. pp. 31–40. With 1 plate.

Pellagra among mental patients is almost confined to those who refuse food. It is not the result of starvation but of avitaminosis. The primary lesion is probably gastro-intestinal and is due to a toxaemia resulting from a diet deficiency.

" In the care of the insane, therefore, it is of considerable importance, first, to look on all patients who consistently refuse foods as potential pellagrins, whilst realising that only a small percentage are susceptible ; second, to regard gastro-intestinal symptoms, especially soreness of the tongue and attacks of diarrhoea, in such patients as laying them under suspicion ; and, third, to regard an excessive reaction to ultra-violet light as a sufficient indication for rigorous dietetic measures."

Two cases of pellagra have recently occurred at the Bristol Mental Hospital, Fishponds, one of which is here reported :—

Female, married, aged 21. Never been out of the South-west of England. After birth of child twelve months previously, she became depressed and suffered from delusions. She took very little food.

Admitted in February, 1926, in a state of catatonic stupor. Physical examination revealed no definite abnormality except a dry red tongue. Later she began to take solid food. Early in May she became sunburned about the face and neck, but this in reality was a pellagra dermatitis. The hands were also affected. The mouth became ulcerated and suppurating bullae appeared upon the face. Towards the end of May periodic attacks of diarrhoea set in with liporrhoea and creatorrhoea. The patient became very emaciated and exhausted. Death took place on June 15th, 1926 from septic absorption. Laboratory investigations included bacteriological examination of the stools and blood chemistry, but no abnormalities were found. A full-page plate reveals the typical pellagra dermatitis.

The post-mortem findings may be summarized briefly as follows : Tongue atrophic and ulcerated. Thyroid, parathyroids and suprarenals normal. Pituitary gland rather large but histologically normal. Nothing pathological found in the heart, lungs, spleen, liver, pancreas or genito-urinary organs. The stomach showed moderate atrophic gastritis. The small bowel presented general atrophy with small haemorrhagic points. In addition to atrophy the large bowel showed superficial ulceration in the last foot of the colon. Sections confirmed this atrophy, which was especially seen in the lymphoid elements, and there was a lack of phagocytic cells in the submucosa. The changes found in the cortex and spinal cord were slight. In the mid-dorsal region of the cord small areas of degeneration in Goll's column were noted. The peripheral nerves were not examined.

As regards diagnosis the authors are satisfied that this is a case of acute pellagra. The only other skin condition to be discussed is that described by McCall Anderson and associated with porphyrinuria. In this the destruction of the skin is greater and the urine deeply pigmented. The chemistry of the urine was normal in the case above described.

In the discussion arguments are given in favour of the view that there is a preliminary avitaminosis in pellagra. The two vitamins present in the water-soluble B group are probably lacking in the disease. Neither of these can be stored in adult tissues in the same amount as is the fat soluble group, and in animals symptoms follow quickly upon deprivation. These vitamins are contained in all natural food stuffs, more especially in plant seeds, birds' eggs and yeast. They are always associated with purine and pyrmidine bases and deprivation is followed by gastro-intestinal atrophy, defective fat absorption and polyneuritis. The authors discuss the various lesions of pellagra and devote some space to porphyrin which is a structural unit common to all haemoglobins and chlorophylls. It is iron free. Light sensitiveness is found in congenital porphyrinuria but not in the haemato-porphyrinuria of sulphonal poisoning. Coproporophyrin, normally present in the bowel, may be absorbed from the atrophied gut in excessive quantities and may be the possible cause of pellagrous pigmentation.

In conclusion, stress is laid upon the importance of diagnosing possible pellagra cases in the absence of a typical rash. Treatment should include the administration of egg-yolk, yeast and hydrochloric acid.

A. D. B.

GREENBAUM (Sigmund S.). **Fusospirillary Dermatitis: its Occurrence in Acute Pellagra.**—*Arch. Dermat. & Syph.* 1927. June. Vol. 15. No. 6. pp. 678–684. [15 refs.]

Fusospirillary infection, due to Vincent's organisms, may give rise to a dermatitis in regions other than the penis, even in temperate climates. Two cases are here described. In one the infection involved the external auditory canal and in the other the hands and vulva. The latter case is of special interest because it may have been in reality one of acute pellagra in which a secondary infection with Vincent's organisms had taken place. The patient was a negress aged 32. There was a previous history of more or less constant intoxication for the last two months. Severe inflammation of the mouth was first noticed and this was followed by fever, dermatitis of the hands and vulva, diarrhoea, apathy and death in a little less than six weeks. An autopsy was performed, but did not give any help in the diagnosis of pellagra. The brain and spinal cord were not examined.

In conclusion the author states that "the moist or bullous types of acute pellagra are worth further investigation from the standpoint of this symbiosis," i.e., invasion by Vincent's organisms.

It is interesting to note that there is only one reference in the literature to this subject. SAMBON found spirochaetes in the fluid from a bleb on the hand of a patient in Roumania suffering from acute pellagrous dermatitis.

A. D. B.

SUSMAN (William). **Aetiology of Pellagra.**—*Edinburgh Med. Jl.* 1927. July. New Ser. Vol. 34. No. 7. pp. 419–422. With 1 text fig. [5 refs.]

The morbid anatomy of pellagra, the distribution of the lesions and the tissue changes suggest to the author the probability of the disease being due to a blood-borne infection. Further considerations lend support to this view, viz., the mononuclear cell increase in the blood,

the work of Palmer and Secor, who obtained favourable therapeutic results with an autoserum, the monkey inoculation experiments of Harris and the work of McNeal and his colleagues.

Following the suggestion of Wood the presence of a protozoan organism was first sought.

"Ten cc. of defibrinated blood from a well-marked pellagrin, to which 1·0 cc. of a 50 per cent. solution of glucose had been added, was incubated anaerobically at 37° C. After 24 hours' incubation, hanging drops were examined and highly motile organisms dashed across the field especially when the material was taken from the bottom layer of the culture."

Later, stab and slope cultures were made, using equal parts of +6 glucose agar and egg broth alone. (+6 glucose agar = glucose 10 gm., NaCl 5 gm., albumin-peptone 10 gm., lemco 10 gm., agar 30 gm., water 1,000 cc. titrated with N sodium hydroxide. Egg broth = egg 1, water 300 cc.)

Abundant controls were made and tubes were inoculated and cultured anerobically from all parts of the original blood culture. In about six weeks there was quite an abundant growth consisting of white opaque colonies. Inoculations from the bottom layer of the blood culture gave the best results. Subcultures on sloped blood agar gave a marked growth within a week.

The organism is an anaerobic bacillus of about 0·5 to 2μ in length and about 0·2 to 0·5μ in width. It stains readily with aniline dyes giving a coccal or diplococcal appearance but with Loeffler's methylene blue a polar staining bacillary form was found. Neisser's stain gave negative results, but dilute carbol-fuchsin stained the bacillus readily, showing rounded ends. The organism is gram positive but not acid-fast and it was propagated through four subcultures. Agglutination reactions with dilutions up to 1 in 640 gave positive results.

The same bacillus was isolated from another pellagrin in whom the skin eruption was recent.

In an appendix to this work the author describes more experiments which were made after the paper was written. The organism was isolated from two more cases of pellagra, thus making four in all. A simplified technique is described.

"About 5 cc. of blood from the pellagrin is pipetted into a tube of broth or glucose broth, the surface of the broth having previously been covered to the depth of one inch with sterile liquid paraffin. The culture is incubated at 37° C. This original culture is subcultured about every week until the culture is no longer pigmented with haemoglobin. At that time there usually is an appreciable deposit of growth at the bottom of the culture tube."

Later the organism was found to act varyingly to Gram's stain and to have no definite sugar reactions.

A. D. B.

Debré (Robert) & Petot (Cl.). L'acrodynie infantile, ses liens avec l'acrodynie épidémique de l'adulte, l'ergotisme, l'arsenicisme chronique et la pellagre. [**Infantile Acrodynia, its Relation to Pellagra and other Conditions.**]—*Presse Méd.* 1927. June 15. Vol. 35. No. 48. pp. 753–756. With 2 text figs. [4 refs.]

The comparatively recently discovered and rare syndrome, known as sporadic infantile acrodynia, is here described. Its possible connexions with epidemic acrodynia, ergotism, chronic arsenical poisoning and pellagra are discussed.

It will be sufficient here to give a description of the syndrome and to point out how it differs from pellagra.

Sporadic infantile acrodynia attacks children between the ages of six months and eight years. The onset is usually insidious, the chief symptoms of this stage being alterations in character, headaches, insomnia and severe paraesthesiae in the limbs. Then follow trophic changes in the extremities; these vary in intensity from a mere erythema, with some infiltration of the tissues, up to gangrenous mutilations, usually of the fingers. Other trophic changes are falling of the nails, hair and teeth, the last with or without gingivitis. Secretory troubles are represented chiefly by profuse sweating and salivation. Mental changes may be very marked and the child loses all interest in, and knowledge of, its surroundings. Muscular weakness, especially in the legs, is marked but this is more a hypotonia than a true paralysis.

There is no fever throughout the whole course of the malady.

The last stage of the disease is dramatic and unexpected gradually all the symptoms disappear, leaving only the deformities due to the gangrene; otherwise complete recovery is the rule.

It may be interesting to point out that in 1828–1830 there occurred in Paris an epidemic of what was called acrodynia, which attacked within six months at least 40,000 persons. It is to be noted that these were aged people and adults, children being rarely affected.

This is to be contrasted with present-day acrodynia which is sporadic and practically confined to children and shows marked mental changes, which last were extremely rare in the epidemic form.

With the resemblance of this condition to ergotism and chronic arsenical poisoning it is not proposed here to deal.

At first sight the connexion between acrodynia and pellagra seems to be fairly close, but the authors stress the following differences, viz., the intensity of the mental troubles in pellagra, the character of the erythema, with its localization to uncovered areas and its relation to the sun's rays, the chronic evolution of the disease and the frequent gravity of the prognosis.

A. D. B.

Richfert (G.). [Les pellagres animales. (Thèse doctorat vétérinaire, Paris, 1926, Jouve édit.). [**Pellagra in Animals and Man.**]—Summarized in *Ann. d'Hyg. Pub. Indust. et Sociale.* 1927. Feb. Vol. 5. No. 2. pp. 114–115.]

A comparative study of animal and human pellagra is made. The author points out that maize causes pellagra in man; buckwheat causes "fagopyrisme" in the sheep, goat, ox, pig and horse; clover causes "trifoliose" in the horse, the ox and the sheep; the vetches give rise to gangrenous dermatitis in horses and oxen, while St. John's Wort determines a syndrome of cutaneous, digestive and nervous symptoms in the horse and ox.

The author insists upon the harmfulness of fluorescent substances. Personal observations upon "accidents pellagreux" are made on horses and oxen fed with hay containing St. John's Wort, the whole of which plant is toxic and which presents the photodynamic properties of fluorescent substances.

Pellagra in man and in animals is due to the absorption of a toxin which only acts in the presence of the sun's rays and when the skin or

coat is white. The radiations responsible are found in the infra-red zone and penetrate those regions of the skin unprotected by clothes or adequate pigmentation.

[This abstract deals only with a summary of the author's original thesis.]

A. D. B.

GOLDBERGER (Joseph) & WHEELER (G. A.). **A Study of the Pellagra-Preventive Action of the Tomato, Carrot, and Rutabaga Turnip.**—*Public Health Rep.* 1927. May 13. Vol. 42. No. 19. pp. 1299–1306. [8 refs.]

The study of pellagra-preventive diets has been in progress at the Georgia State Sanatorium for the last ten years. The present work deals with the value of tomato, carrot and Rutabaga turnip in this respect.

Tomato.—It has been previously thought that this vegetable was lacking in P–P factor. It was suspected, however, that this view was erroneous and that in former experiments insufficient quantities had been used.

In April, 1925, 21 insane patients came under observation for preventive treatment with tomato juice. Of these patients one remained under observation for a very short time, one for eleven months and 19 for at least one year. None developed pellagra, though experience shows that 40–50 per cent. would have shown signs of the disease under ordinary circumstances. The daily ration was 40 ozs. of the juice expressed from commercial canned tomatoes. This was divided into three portions and taken with each meal as a beverage.

Carrots.—UNDERHILL and MENDEL found that carrots were very effective in alleviating black-tongue in dogs. To ascertain the presence of P–P factor a small group of insane patients had a daily cooked ration of the equivalent of one pound of the dressed raw vegetable added to their diet. Pellagra occurred in five of these cases, but rather later than might have been expected under ordinary conditions.

Rutabagas.—This vegetable, given in the same daily amount as the carrots, failed to prevent pellagra in a small group of insane patients.

The authors conclude as follows :—

" The failure of the carrots and of the rutabagas may have been due to the ingestion of a quantity which, although seemingly liberal, was too small ; nevertheless, if carrots and rutabagas, as is probable, actually possess pellagra-preventive action, this must be rather feeble.

" Although definitely demonstrated, the pellagra-preventive potency of canned tomatoes must be rated as of a feeble order.

" Tomatoes are recommended for use in the treatment of active cases of pellagra, and it is suggested that a more liberal use of this vegetable, particularly in the late winter and spring, be encouraged as a preventive measure."

A. D. B.

LABORATORY REPORTS.

Archives de l'Institut Pasteur de Tunis. 1926. Apr. Vol. **15.** No. 1. pp. 1–70. With 46 text figs. Notice sur l'Institut Pasteur de Tunis. [**The Institut Pasteur of Tunis.**]

This interesting document cannot be summarized, being itself a retrospective summary of the accomplishment of a long series of years much " foreshortened in the tract of time."

From the historical introduction we learn that the Pasteur Institute of Tunis germinated (very much as the great sponsor's own most prolific discoveries originated) under the happy auspices of Bacchus, in a study of the fermentation of the grape ; and opened forth, in 1893, as a " Laboratoire de Vinification." By what may be regarded as a humorous whim of fate, an antirabic office was connected with it in the following year ; then by subsequent cognate additions it became, in 1900, a Pasteur Institute—the third in order of seniority in the French dominions. The output of its scientific work of thirty years is a veritable epic, where the great engagements occupy the fields of typhus and relapsing fever, and invade the shadowy domain of the filterable viruses and inapparent infections, centring round the names of Nicolle and Conseil, and Blaizot. All these and other things are they not set forth in the "*Annals*" of the Institute ? From their beginning in 1906 and continuation until 1920, and again from 1923 onwards these were published as *Archives of the Pasteur Institute of Tunis* ; but in the interval between 1920 and 1923 they appeared as *Archives of the Pasteur Institutes of North Africa*, which were published at Algiers and Tunis alternately. All these things have been published ; but what has not until now been made public is the fact that this Pasteur Institute, which has bestowed great and manifold blessings upon the people of Tunis—and on populations far beyond—has not received a single bequest, or a private donation worth mention.

A. Alcock.

Sergent (Edmond). Rapport sur le fonctionnement de l'Institut Pasteur d'Algérie en 1925. [**The Work of the Pasteur Institute of Algeria in 1925.**]—*Arch. Inst. Pasteur d'Algérie.* 1926. Mar. Vol. 4. No. 1. pp. 111–142. [56 refs.]

This report, though full of local and official interest, does not contain much pasture for the general. Among items of general interest it may be noted (1) that the leaven of vinous fermentation has been observed to be spread not, as has been thought, by wind, but by Drosophilid flies ; (2) that the immunity conferred by vaccination against smallpox does not last nearly so long in the climate of Algeria as it does in Europe ; and (3) that two plants of common occurrence in N. Africa have been incriminated as poisonous, namely, *Lotus jolyi* (Leguminosae), the leaves and twigs of which contain hydrocyanic acid, and *Entoloma lividum* (Fungi), which causes fatal choleriform effects.

A. A.

KENYA, Colony & Protectorate of: **The Annual Report of the Medical Research Laboratory for the Year 1924.** –31 pp. Nairobi: Swift Press Ltd.

The report of the Analytical Chemist is not here considered as it deals with Public Health and Economics.

In the Medical Research Laboratory the work has been mainly of a routine character, but it is pertinent to remark that routine investigation for clinical ends is always complementary to research—and, indeed, in new countries is itself research of fundamental importance.

Of 2,000 analyses of blood films malaria parasites were observed in 378—subtertian in 81·2 per cent., benign tertian in 12·4 per cent., and quartan in 5·0 per cent. of them.

Of 184 examinations of morbid tissue 17 proved to be malignant tumour—carcinoma and sarcoma and their varieties. Of these, 11 came "from natives untouched by civilization living a primitive life in the native reserves." The Reporter, who recommends these facts to the notice of the faddists that deny—and explain—the absence of malignant disease among uncivilized tribes, attributes the facts to the larger field of diagnosis afforded by the establishment of hospitals and dispensaries in the native reserves.

It is noted that examinations of stools for pathogenous Protozoa is now a more critical business, by the employment of iron-haematoxylin staining, than it has been in the past. A case of dysentery concomitant with heavy infestation of Giardia improved as the Giardia disappeared. Helminth infestations in 150 of 731 samples of stools—Taenia in 61, Ancylostoma in 30, Trichiuris in 21, Ascaris in 18, Strongyloides in 9, Schistosoma in 2, and Hymenolepis in 1. A large number of cases of dysentery with muco-sanguineous stools was observed in which no organism, either Protozoon or Bacteriid, could be discovered; they all yielded to saline treatment. The discovery of a virulent strain of the Klebs-Löffler bacillus is noted.

Agglutinations with standard sera of European origin still give inconclusive results: the medical officers report many cases of clinical typhoid, but most of the sera received for diagnosis are negative. This, however, is not the case with the cases of undulant fever that occasionally occur.

Plague vaccine and calf lymph vaccine are manufactured in the laboratory and 135,480 doses of Na–K–Bi tartrate were manufactured by the Bio-chemist.

The Reporter has some deprecatory remarks on the scheme of teaching native Africans to be laboratory assistants before they have received any mental training of a fundamental kind. A. A.

KENYA, Colony & Protectorate of: **Annual Report of the Medical Research Laboratory for the Year 1925.** [KAUNTZE (W. H.), Director.] – *Kenya Ann. Med. Rep. for Year ending 31st December, 1925.* pp. 107–149. With 1 folding table & 1 diagram.

From this report of a full and well-organized routine, where, moreover, original research work, having already been published in Vol. I of the *Kenya Medical Journal*, is but nominally noticed, the following items of general interest must be selected.

A trypanosomiasis survey has gone far enough to justify the belief that tsetse-fly control is a less difficult problem in Kenya than in adjoining territories.

A first-hand comparison with S. Africa in respect of plague has shown that the natural conditions there are paralleled in the Nakuru District of Kenya. Here, though the wild rodents are fewer in species, most of them are identical with species that are known to be susceptible to plague in S. Africa. Here, moreover, the black rat abounds in all farmhouses and native huts, so that plague once entering through susceptible wild rodents would very certainly be disseminated among the population by that rat.

The results of a comparison between the Bordet-Wasserman and the Sigma test in cases of yaws showed both tests positive in 193 instances, both negative in 98 instances, Sigma negative and B.W. positive in 10 instances, and *vice versa* in 23 instances.

In the preparation of calf-lymph (which was in enormous demand) the amount of added glycerine was 6 times the weight of pulp, without detriment to results as testified by district medical officers. Cleansing of the calf's belly with ether as well as sterile water before vaccination and before reaping the vesicles lessened the bacteria in the pulp.

Of 57 pathological specimens from natives 18 were malignant growths, 13 of them being sarcomata.

On several occasions organisms isolated from dysentery stools agreed culturally with a Flexner strain and agglutinated with their own cultures though not with cultures from the Oxford University laboratory. In 2,390 smears from rats' spleen, made mostly in the ordinary routine, 8 disclosed plague.

Of 2,452 blood-smears examined 318 showed malaria parasites, 289 being *P. falciparum*. Of 1,071 samples of faeces 118 contained the cosmopolitan protozoa and 450 contained eggs of helminths. In 106 samples containing blood, mucus, etc., neither protozoa nor helminth eggs were found.

In the S. Kavirondo district about 1½ sq. mile of good riverine land have been freed from *Glossina palpalis* and made safe for occupation, by clearing and stumping about 1¼ mile of river bush and 400 or 500 yards of hill-jungle above a result that has impressed and wonderfully heartened the natives. During clearing the fly-swarms are observed to become disorganized.

Of 848 rat-fleas identified 35·1 per cent. were *Xenopsylla cheopis*, 15·0 *X. braziliensis*, 44·8 *Echidnophaga gallinacea*, and the remaining 4·9 per cent. included *Ctenocephalus canis* and *felis* and *Dinopsyllus lypusus*.

In the Administrative Section great disappointment is expressed of attempts to train native laboratory assistants without the essential adjuncts of harness and discipline, and complaints are made in the pathological section of very imperfect accommodation for post-mortem work, and in the entomological section of the want of an insectarium—a crippling deficiency indeed.

A. A.

Uganda Protectorate. **Annual Report on the Bacteriological Department for the Year ended 31st December, 1925.** [Duke (H. Lyndhurst), Director.]—7 pp. 1926. Entebbe: Govt. Printer.

Owing to the absence of the Director on other employments and on long leave, and to the extraordinary demands made on a staff, thus

temporarily reduced, for plague and smallpox vaccine, research work was very much in abeyance in 1925 and the report for the year consists of constructural and statistical details of an interest purely local.

A. A.

NIGERIA. **Annual Report of the Medical Research Institute, Lagos.** [CONNAL (Andrew), Director.]—*Ann. Med. & San. Rep. Nigeria, 1925.* Appendix A. pp. 1–37. With 1 chart.

The following items of this perspicuous report are selected as of general interest.

Plague.—The observation and record of the results of *direct* inoculation from guineapig to guineapig were carried on through the greater part of the year. In one series an infection from a bubo in man died out in the 13th succeeding animal; in this series the fatal successions were at 9, 8, 7, 4, 4, 5, 8, 7, 4, 3, 4, 7, 9 days, in their order. In another series an infection, derived from the guineapig of the first series and transmitted to a monkey whose juices (mixed spleen, lungs, and bronchial glands) were inoculated into a guineapig, was carried on through a sequence of 43 more guineapigs in a term of 223 days; in this series of 44 the longest survival after inoculation (apart from the last two of the series, in which it was 22 and 23 days) was 9 days, and the shortest 2 days, but 3 to 7 days was the commonest; in one side-inoculation from this series the only macroscopic signs observed in the guineapig *post mortem* were two small inflamed glands at the site of inoculation, and no signs of plague were found in another guineapig inoculated from this animal; in another side-issue of this series a guineapig the last but one of the series of 44 developed a bubo rapidly but showed no other signs of illness, although the pus aspirated from the bubo and applied to the scarified skin of another guineapig was responsible for an infection carried through another series of 12 guineapigs. In this latter series a big proportion of the animals' lungs were affected. The general conclusions formed from four independent series of inoculations, involving 98 guineapigs and a term of observation extending over 298 days, are as follows:—

"Rarely did the infection terminate fatally in less than 3 days, at the stage of an acutely inflamed bubo, and when it did happen the toxaemia must have been profound. Most of the deaths took place in from 4 to 6 days, when the bubo had become haemorrhagic and friable, with small beads of pus. In the earlier stages of this condition of the bubo the spleen is usually finely speckled, i.e. with minute abscesses. In the later stages the spleen practically always shows speckling but . . . larger abscesses, and in some cases the liver shows the same appearance. When the bubo had become definitely broken down and purulent it was the rule to find abscesses in both the spleen and the liver. Still later when the contents of the bubo have become thickened and caseous, the lungs may also show abscess formation."

Another instructive observation was a succession of hospital cases revealing the existence of a form of pneumonic plague in man where the sputum is the typical rusty sputum of ordinary pneumococcal pleuro-pneumonia, the plague bacilli being so scanty, or so transformed and whelmed among other micro-organisms as to debar diagnosis except by inoculation of a susceptible animal.

Rodents and their Ectoparasites in connexion with Plague. The rat campaign accounted for 154,007 rodents (among which an Insectivore, *Crocidura manni*, is included), and the species are *Rattus rattus*

and *norvegicus*, *Mus musculus*, *Cricetomys gambianus*, and *Lemniscomys fasciatus*, of which *Mus musculus* was much the most numerous. *R. rattus* outnumbered *norvegicus* in the proportion of about 9 to 1. Plague-infected rodents were found in every month but April; were most numerous in October; and all but 26 of them were found in the latter half of the year. There were many more infected *rattus* than *norvegicus* (247 to 26) but the *proportion* of the former to the latter was as 9 to 7. It was noted that in staining smears of rat-spleen with carbol-thionin infected smears turned slate-blue "in practically every instance." The ectoparasites found on the rodents were *Xenopsylla cheopis* and *brasiliensis* and *Laelaps echidninus*. Some exact experiments, similar to those done in India, were made with guinea pigs allowed freedom in native houses under diversified conditions; the guinea pigs did not contract any fleas in a room that had been disinfected the day before with kerosene and cyllin spray, but they did get fleas in houses that had undergone gaseous disinfection.

Yellow Fever.—The disease was unusually severe in Nigeria and particularly in Lagos where it was worst in April and May. Of 15 fatal cases 13 were Europeans (mostly British), 1 was a Syrian and 2 were Africans. Except that in a single slice of a liver (Levaditi stained) two bodies "very like Leptospira" attracted attention, no undoubted Leptospira was discovered by any of the diverse methods employed for their detection.

Blackwater Fever.—Twenty cases (3 fatal) are analysed, distributed over the whole twelve months, excepting February and April; 17 British, 1 Syrian, 1 Indian, 1 West Indian; 5 occurring in the third decade of life, 4 in the fourth, 10 in the fifth; of the 13 cases credited with a previous residence 6 had lived in the tropics for five (5–25) years or more. "The association of the sub-tertian malaria parasite with the actual condition of blackwater fever is demonstrated in 10 cases." The further details of a careful and critical analysis may be looked for elsewhere.

Leprosy.—Patients who had been brought up to the maximum dose of moogrol retrogressed when the treatment was altered to copper sulphate in daily half-grain dose. All patients on sodium morrhuate followed by hydnocarpate "have willingly undergone the treatment" and "come forward for their twice-weekly injections."

Entomology.—Two thousand individuals (male and female in numerical equality) of *Aëdes* (*Stegomyia*) *argenteus* have been critically examined, and in many instances photographed, in respect of their colouration, and the markings of the legs, as well as the colour and markings of the abdomen, have been found to exhibit a very wide diversity; the shape of the lyre on the thorax however is least of all variable. Cross-breeding experiments with Aëdes species have been attempted. The survey of the endoparasites of "wild" biting insects has been continued. Feeding experiments with *Aëdes argenteus* in cases of yellow fever have been carried on—besides a large amount of more prosaic routine work.

Dermatology.—A promising survey of the skin lesions prevalent in Lagos has been started.

Histology.—Twelve specimens of malignant growth have been observed—7 carcinomata and 5 sarcomata. Negri bodies were discovered in the brain of a dog shot [for reasons not stated].

Coprology.—Attention is drawn to cases where red blood cells or pus cells, or epithelial cells, or Charcot-Leyden crystals occur in suspicious stools in which neither pathogenous protozoa nor dysentery bacilli can be detected ; 27 such cases were investigated.

A. A.

Gold Coast. **Annual Report of the Medical Research Institute, Accra, from April 1st, 1925, to March 31st, 1926.** [Young (W. A.), Director.]—*Gold Coast Rep. Med. & San. Dept. for Period Apr., 1925–Mar., 1926.* Appendix A. pp. 38–50.

This report covers the usual fields of investigation and the following items may be noticed. A tsetse-fly and trypanosomiasis survey, by the Director, in the country watered by the Volta river (see this *Bulletin*, Vol. 23, p. 290). The late Major Ingoldsby located three fly-belts in the Oda and Ho districts. Histological examinations include 223 specimens of various organs, and among them 37 tumours have been identified, chiefly from " bush " (not town-bred) Africans ; 13 are classified under sarcoma and 13 under carcinoma, 11 being benign. A puzzling case of vulvar ulceration was finally resolved by the discovery of eggs of *Schistosoma haematobium*. Plague did not appear during the year either in man or in the chronic form in rats. In cases diagnosed as yellow fever Leptospira could not be found in the blood or in inoculated guineapigs, nor could lime-casts be discovered in the kidneys. Of 46 cases diagnosed as bacillary dysentery by microscope 36 were cultivated, but only 3 of these gave serum agglutination –a result that suggests future investigations. A paper on the " Pathology of Prolonged Emetin Administration " has to be noticed elsewhere (*ante*, p. 13).

A. A.

Van den Branden (F.). Rapport sur le fonctionnement du laboratoire de Léopoldville en 1925. [**Leopoldville Laboratory Report for 1925.**]—*Ann. Soc. Belge de Méd. Trop.* 1926. Dec. Vol. 6. No. 3. pp. 283–312. [10 refs.]

Eleven pages of this report are filled with tabulated routine detail and 4 more with bare official statements relating to educational institutions. Some of the contents—e.g., the results of antipneumococcic vaccination, the action of " Bayer 205 " in human trypanosomiasis, and the report on the tuberculosis institute—are abstracts of documents that appear independently and have been (or will be) noticed in the appropriate sections of this *Bulletin* ; so that there is not much left for notice here.

In the therapeutics of human trypanosomiasis, besides " Bayer 205," the effects of tryparsamide and of stibosan, and the non-effects of " Targowla " have been observed. In cases where tryparsamide is unsuccessful this is attributed either to the co-existence of syphilis, or to some prior arsenical treatment having rendered the trypanosomes resistant. Patients have easily tolerated stibosan (Heyden 471) given in a series of intravenous injections of 0·2 to 0·3 gm. ; its action is said to be slower than that of tartar emetic, but more rapid than that of stibenyl, and not much beneficial in chronic cases.

Antimosan (Heyden 661), supposed to be more active than 471, was tried—and was well tolerated—by gluteal injection in 14 cases of malaria in children ; in several of them the parasites did not disappear

after a series of 1 cc. injections; in other cases it had no constant effect on subtertian and quartan parasites even when given concurrently with quinine.

Neotrepol tried (in local application) for tropical ulcer was judged to be not better than neosalvarsan.

A. A.

South African Institute for Medical Research. **Annual Report for the Year ended 31st December, 1925.** [Lister (F. Spencer), Director.] 37 pp. With 2 plates. 1926. Johannesburg: P.O. Box 1038.

The more general interest of this report is to be found in the research section—on Plague studies.

Although actual infection among rodents of the veld is at present scanty (probably because rodents are still scarce after the epizootic of 1923–24), and although only 4 species (the Lobengula gerbille, the multimammate mouse, the ground squirrel, and the striped mouse) are of practical importance in spreading the disease, yet in the laboratory 10 species of them have been found to be susceptible to plague, and even more sensitive to infection than guineapig or black rat. Curiously, the most susceptible of all (the Karroo rat) is the one that is believed to escape infection in nature, its immunity under natural conditions being probably due to its having its own particular properties in fleas. Infection among Lobengula gerbilles is readily transmitted by eating infected comrades—a prevalent habit of this species. Experiments in inducting clean animals into old burrows believed to have been depopulated by plague suggest that infection may lurk there for at least six months. In the course of the survey a new disease, caused by a novel gram-positive motile bacillus and as virulent as plague, was discovered in gerbilles; it is communicable to mice and smaller wild rodents, but not to black rat, larger wild rodents, cat, dog, and monkey: its characteristic pathological features are extensive necroses in liver and spleen, with bacteraemia. Among entomological items some evidence of a seasonal variation in the numbers of *Xenopsylla cheopis* came to light, and two of the commoner fleas of wild rodents (namely, *Dinopsyllus lypusus* and *Chiastopsylla rossi*) were found capable of transmitting plague between rodents, experimentally.

Particulars are given of the results of examinations of various local collections of mollusks for evidence of schistosomiasis and other fluke-infestations.

In 1,100 histological examinations of material from surgical and post-mortem sources the diagnosis of carcinoma was made in 232 cases and of sarcoma in 31; particulars of race are not given.

Of 9,024 (2,501 European and 6,523 Native) specimens of sputa examined for the Miners' Phthisis Medical Bureau, 283 European and 1,376 Native were positive for *Bacillus tuberculosis*.

A. A.

Mauritius. **Report on the Work done at the Bacteriological Laboratory from October, 1925, to September, 1926.** [Barbeau (L. C.).] 5 pp. 1926. Jan. 4. [Received from the Colonial Office Apr. 9, 1927.]

During the year 1925–1926 the work of the Mauritius Laboratory included over 6,000 observations in a very wide field. In the course of

1,824 blood examinations the embryos of *Filaria bancrofti* and all the three species of malaria parasites were observed ; and in 60 out of 210 examinations *ad hoc* specific agglutination tests for typhoid were positive but not at all for paratyphoid. The tubercle bacillus was found in 72 out of 322 samples of sputum ; and Löffler's bacillus in 81 out of 285 throat swabs. In three fatal cases of influenza an organism identical with Pfeiffer's bacillus was cultivated from the cerebrospinal fluid. In the 1,606 specimens of faeces examined the following parasites were noticed : *Trichuris trichiura* in 554, *Ascaris lumbricoides* in 251, Ankylostoma in 129, *Strongyloides intestinalis* in 24, Oxyuris in 1 ; and Lamblia in 88, Trichomonas in 37, *Tetramitus mesnili* in 3, *Balantidium coli* in 1, and *Isospora hominis* in 2. In the course of 102 examinations of centrifugated urine eggs of *Schistosoma haematobium* were detected 34 times, microfilariae 3 times, and Trichomonas 6 times. Among histological examinations the eggs of *Schistosoma haematobium* were found in four specimens of vaginal scrapings, and were discovered in a tumour taken from the mesentery of a young woman otherwise apparently free from bilharzia infestation. The tumours identified histologically were squamous epithelioma, scirrhus, adenoma, papilloma, sarcoma, fibroma, and myxoma. The number of infants vaccinated against tuberculosis during the first 9 months of the year was 486. A considerable variety of therapeutic vaccines were prepared ; a case is mentioned of successful local treatment of a long chronic conjunctivitis with an autovaccine derived from a diphtheroid organism isolated from the conjunctival secretion. For the Public Health Department 926 samples of foods and drinks were analysed. Medico-legal investigations numbered 218, of which 18 related to cases of rape and 11 to cases of murder.

A. A.

Federated Malay States. **Annual Report of the Institute for Medical Research for the Year 1924.**—17 pp. Kuala Lumpur : F.M.S. Govt. Press.

In the medical and pathological section of this succinct and lucid report the chief subjects of discourse, outside the daily routine, are the new Institute for the prophylactic treatment of rabies and two novel varieties of infective disease—namely, Tropical Typhus and Melioidosis, both of which have already been noticed in this *Bulletin*, the former in Vol. 22, p. 944, and Vol. 23, p. 888, the latter in Vol. 22, pp. 659–662. The clinical and serological features of Tropical Typhus are now described and some aspects in the aetiology suggestively considered. Briefly, the disease is similar to typhus, but is not spread by lice and does not occur in crowded cities. In the 18 cases that have been observed all the patients lived or worked in open uncultivated country, 10 of them having been cattle-keepers and 6 more having been occupants of a camp pitched on a grazing ground. This association with cattle suggests ticks as probable carriers, and since rats are generally to be found where cattle are kept –rats as probable reservoirs of the virus : in the course of nature, on this theory, the tick larva would be infected from the rat and the adult tick would disseminate the infection. The " new " glanders-like disease, Melioidosis, has already been considered at some length.

In the section on morbid histology, 39 cases of malignant tumour are recorded—chiefly carcinoma and varieties of sarcoma—among coloured races, namely 4 Malay, 23 Chinese, and 12 Tamils.

The report of the Malaria Bureau describes some observations on the reaction of waters inhabited by Anopheles larvae. The species found in jungle clearings have a preference for acid water with a pH range from below 5·5 to 6·6, but those found in open marshes and rice-fields and ponds commonly occur in water of less acidity (pH 6·4 to just below 7·0), and *A. umbrosus* has, so far, been found in very acid water pH below 5·0). But "there are doubtless many other factors, determining the prevalence of larvae of particular species, besides the degree of acidity or alkalinity of the water, and it is to the chemical causes and biological concomitants of the latter that we must look for new light." A survey of these "biological concomitants" is in progress, of which a few interesting but not particularly important details are given. In experimenting with larvicide it was observed that the filtrate from a suspension of Paris green is larvicidal.

In the report of the Chemist it is mentioned that during the year 7,251 fluid ounces of Vitamin B extract from rice-polishings were issued to the medical profession for the treatment of beriberi.

A. A.

Federated Malay States. **Annual Report of the Institute for Medical Research for the Year 1925.** [Stanton (A. T.), Director of Govt. Laboratories.]—30 pp. 1926. Jan. 31. Kuala Lumpur.

This Report also includes the Reports of the Pasteur Institute, of the Malaria Bureau (which is to be noticed in the Malaria Section), and of the Chemical Laboratory. The principal items included in the main of the Report are investigations of the treatment of malaria, of the nature of tropical typhus, of the treatment of dysentery, of the vitamin B content of rice-polishings, and of the local existence of Weil's disease, and a classified list of the tumours histologically determined.

In the Pasteur (antirabic) Institute 123 cases received attention, of which 70 underwent the complete course of treatment; no deaths occurred during or after treatment.

The results of the work on the treatment and diagnosis of malaria have already been published, either as Bulletins or in the *Indian Medical Gazette*, and appreciated. Similarly with the work on tropical typhus, which is now stated to be as common in the Malay States as typhoid fever; there is still no evidence of transmission by lice, and no further corroboration of the hypothesis of conveyance by ticks, nor have attempts at transmission to guineapigs been successful. In the treatment of dysentery serum was found to be insufficiently beneficial to justify its expensiveness; and stovarsol appeared to be inferior to emetine in acute amoebiasis although useful in more chronic cases. Experiments have shown that the value of rice-polishings as a source of vitamin B is greater than has been supposed, and that an extract of polishings—the method of preparation of which is fully described in the Report of the Chemical Laboratory—is almost as potent as the polishings themselves. The details of malignant tumours comprise 78 cases—6 in Malays, 42 in Chinese, and 30 in Tamils: attention is drawn to a case of epitheliomata on scrotum and right index finger in a Tamil who

for three years had been engaged in anti-mosquito oiling. The existence of Weil's disease in Malaya has long been suspected, and at last the infective organism has been discovered. Further observations on Melioidosis show that the disease has a wider distribution than was suspected; and although from experiments local horses have been inferred to possess immunity to this disease, a case of natural infection was discovered this year in an Australian horse imported six months previously.

A. A.

TRANSACTIONS OF THE ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE. 1927. Jan. Vol. 20. Nos. 5 & 6. pp. 321–326.

Laboratory Meeting.

Among interesting exhibits the following are suitable for brief description from a didactical standpoint:—

By Dr. P. A. BUXTON. Photographs showing Samoan villages (*a*) standing clear of vegetation and nearly free from filariasis, and (*b*) buried in vegetation and much afflicted with filariasis. Two rat-tailed maggots, by unimpeachable testimony passed alive by a patient. A dense fibroma containing nematodes, from a donkey in Samoa. Section of a nearly full-term placenta showing nearly all the maternal corpuscles infested with *Pl. malariae*, and all the foetal corpuscles free (shown for Mr. THEODOR, of Jerusalem).

Among "Mansoniana" shown by Dr. MANSON-BAHR was Sir Ronald Ross's original letter describing the full cycle of Proteosoma in Culex. By a happy coincidence specimens of *Anopheles maculipennis* infected with *Pl. vivax*, exhibited by Colonel JAMES, matched the figures by which the latter was illustrated.

By Dr. H. M. SHELLEY. Pictures of cases of pellagra illustrating signs and symptoms and beneficial effects of thyroid treatment (1 to 2½ gr. daily) of that disease; also a chart to show similarity between myxoedema and pellagra.

By Dr. A. C. STEVENSON. Sections of liver (*a*) from West African yellow fever and (*b*) from spirochaetosis icterohaemorrhagica were compared together to show their distinct histological difference; two sections of spleen from the first-named disease showed, respectively, degeneration of internal coat of arteries, and nodules of endothelium-like cells in the centre of a Malpighian corpuscle.

Among exhibits by Dr. J. Gordon THOMSON were sections showing stages in formation of "malarial granuloma" in brain.

Dr. C. M. WENYON and Dr. H. H. SCOTT showed, among other things, films of heart-blood illustrating the tendency of intestinal flagellates to invade the blood-stream before or after death –Hexamita in Algerian tortoise and Senegal chameleon, Trichomonas in demoiselle crane and stump-tail lizard, and *Selenomonas ruminantium* in Java mouse-deer being the flagellates seen in the films.

A. A.

MISCELLANEOUS.

Acton (Hugh W.). **Neurasthenia in the Tropics.**—*Indian Med. Gaz.* 1927. Jan. Vol. 62. No. 1. pp. 1–6.

In Major Acton's view the *exciting cause* of neurasthenia is a depression of the function of certain endocrine glands, mainly the thyroid and to a less extent the adrenals. This depression may be due to: (1) The direct action of the toxins of acute diseases, such as enteric fevers, cholera, plague, bacillary dysentery or of chronic diseases such as malaria, syphilis, hookworm infection; (2) interference with the digestive functions, brought about by toxins and by putrefactive changes in the gut; pyorrhoea and chronic dysentery produce such changes. The *predisposing causes* in the tropics are numerous. (1) The high atmospheric temperature and excess of humidity tax the body, for the skin requires a large quantity of blood to effect the reduction of the temperature by perspiration. Easterns rarely eat a meal during the heat of the day and wear suitable dress. (2) The tendency to production of anaemia from "lack of ventilation during the hot weather." (3) The poor quality of the food during the hot weather. (4) The inadaptability of the Indian cook to European methods of cooking; he uses capsicum and mustard oil which are stomach irritants, and makes all dishes as greasy as possible. (5) The fetish of exercise; strenuous games are played in the hottest period of the year.

The first effect of the combined predisposing and exciting causes is hypothyroidism; shown-by a feeling of chilliness, loss of condition of the hair, harsh skin. A similar depression in the activity of the adrenal medulla causes the sympathetic nervous system to work at a lower ebb; there is loss of tone in the whole involuntary muscular system—low pulse tension, dilatation of the stomach, constipation (from colon distension). The activity of the gonads is depressed as well. The functions of the parasympathetic glands are unaffected or may be stimulated—the anterior lobe of the pituitary, the prostate, the adrenal cortex. The amylase function of the pancreas is diminished, and the parathyroids depressed, especially in Europeans. The patient, not feeling up to the mark, becomes introspective and develops a visceral consciousness, which again leads to fear that heart disease or cancer is developing. He becomes morbidly anxious, thinks he is becoming sexually impotent; a woman, if married, may develop morbid fears about her child. Such patients show an excessive response to external stimuli, e.g., they fear to go alone into society. Depression of the higher mental functions comes on slowly; to lack of concentration succeeds a slow failure of memory.

The whole success of treatment depends on the forming of a complete diagnosis. The exciting and predisposing causes must be identified and removed by treatment, and then the after-effects, such as anaemia, endocrine deficiencies, loss of involuntary muscular tone dealt with, if necessary. If the cure is to be complete the physician must be able to deal with the patient's mental condition. Of the *exciting causes* among the acute diseases the author puts enteric fever first. Most of the neurasthenia in the tropics, however, is due to chronic disease of the alimentary canal, and it has to be remembered that in chronic colitis, whether bacterial or protozoal, there may be no tenesmus and no visible blood or pus in the stools, the only constant sign being the

passage of mucus. When the colitis is amoebic and the stools are plated there is usually a large number of "fine lactose or non-lactose fermenting colonies of streptococci or yeasts as secondary infections." Treatment may be by alkalis (bism. carb. or sod. cit.) internally and emetine by the vein or the muscles, or by bismuth-emetine-iodide, or by a course of autogenous streptococcal vaccines, followed, when the gut flora is normal, by emetine and alkali as before. The author holds that the failure of emetine is due to acidity caused by the action of the streptococci. When the colitis is bacterial, there may be found on plating transparent non-lactose-fermenters of the dysentery group or opaque non-lactose fermenters of the paradysentery group; sometimes it is necessary to fall back on the agglutination reactions. Treatment consists in regulating the diet as regards carbohydrates (not reducing its caloric value too much) and giving appropriate doses of vaccines of the causative agent and secondary invaders. Pyorrhoea, gastric and duodenal ulcers, appendicular inflammation may also have to be considered.

As to *removal* of the *predisposing causes*, a change to England or the hills, if it is possible, will be sufficient. Even when it is not possible a good deal can be done to eliminate them. Among after-effects which have to be treated two are specially considered—endocrine defects and loss of tone of the involuntary muscles. Those cases of neurasthenia that occur after acute diseases do extraordinarily well with endocrine therapy. Loss of muscular tone is combated by abdominal support or massage, liquid paraffin, and endocrine glands. Treatment must be continued for some months.

[It will be seen that this a practical paper full of detail. It will repay those who are able to do so to consult it in the original.]

A. G. B.

Stannus (Hugh S.). **Tropical Neurasthenia.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1927. Jan. Vol. 20. Nos. 5 & 6. pp. 327–334.

After a discussion of the views of authorities on the psychoneuroses, the work of Crile, and the action of light and heat on the human economy Dr. Stannus sums up as follows:—

"The difficulties of life met with in the tropics may be those commonly found in our own country, but they tend to take on an aggravated form midst the conditions which life in such surroundings entails, conditions associated with apprehension, or the emotion of fear.

"The special factor involved in Tropical Neurasthenia, it is suggested, is the summation of the multiple, minor, noxious, defence-inducing stimuli already alluded to.

"Both sets of conditions cause over-stimulation with exhaustion of the kinetic system for defence, a system whose links may be further injured by the common infections and toxaemias and by various climatic conditions occurring in many tropical countries.

"The factors, therefore, involved in the production of neurasthenia, may be multiple and varied. Prevention depends upon their recognition, on their correct interpretation, on understanding how they act, and in the first instance on correct selection of the men allowed to proceed to tropical countries."

Dr. Stannus notes that there is not a clear conception what should and should not be included under the term neurasthenia. It is essential

to distinguish between this condition and the depressive state, for the depressive is always a potential suicide, whereas the neurasthenic, who likes to discuss his troubles, is not.

In the discussion which followed Dr. A. BALFOUR gave a useful summary of recent correspondence in the *British Medical Journal.*

A. G. B.

VAN LOON (F. H. G.). Het zenuwlijden der blanken in de tropen. [**Nerve Affections of Whites in the Tropics.**]—*Nederl. Tijdschr. v. Geneesk.* 1927. Apr. 9. 71st Year. 1st Half. No. 15. pp. 1874–1899.

Many European colonists return from the tropics with nervous complaints, and among these patients neurasthenics are very prevalent. Tropical neurasthenia differs widely from the common type. In causes and pathogeny, as well as in symptoms, exogenous and bodily factors preponderate. Hypersecretion of various organs is most pronounced (profuse sweating, rhinorrhoea, diarrhoea, polyuria), at first occurring under the influence of exogenous physical and psychical factors, later in more continuous and autonomic form. There is hypersensitivity to chilling, continual "colds" are common, nutrition is impaired in cases of long standing. The temperature, generally normal, may be slightly raised (low fever).

The author sums up as follows the exogenous causes of the condition: (1) The continual moist heat, with the high demands it makes on the heat regulating function of the nervous system; (2) the long hours of abundant light; (3) the shorter and lighter sleep in the tropics; (4) irritation of the intestinal tract by the excessive use of spices; (5) the numerous noxious influences of toxic and infectious character; (6) the atmospheric electrical condition; (7) the loneliness of many outposts; (8) the monotony of the surrounding tropical nature; (9) the lack of higher ideals and the materialistic conception of life of many colonists.

Therapeutical advice can be founded upon these views of the pathogeny. Regular leave either to mountainous districts or to Europe is very important. Many cases of tropical neurasthenia occur in people who in view of their character should never have been sent out to the tropics.

The neurasthenic condition may play a part in the causation of other tropical diseases, i.e., sprue.

Neurasthenia is rare in natives and was only met with in those who had more or less adopted European habits.

The article contains much stimulating speculation.

W. J. Bais.

NÄGELSBACH (E.). Die Operation der Elefantiasis scroti et penis. [**Operation for Elephantiasis of the Scrotum and Penis.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1927. June. Vol. 31. No. 6. pp. 282–291. With 3 text figs. [6 refs.]

The author, who has acquired considerable experience of his subject in the course of two years' work with an American Mission in Western Abyssinia, deplores the fact that in German surgical text-books instructions with regard to the procedure called for in removing an elephantoid scrotum are either lacking or at best superficial. He accordingly

describes for the guidance and benefit of surgeons proceeding to the tropics an operation which he himself has practised in 38 cases.

In the part of Abyssinia where Dr. Nägelsbach has worked elephantiasis is common, though the elevation is nearly 6,000 feet above sea-level and the climate temperate. The lower limbs and male genitalia are most frequently affected. Filariae are as little observed as blood-sucking Culicidae. The author has never found microfilariae in the blood of his patients, nor discovered parent worms in removed tissues. Filariasis is consequently excluded as an aetiological factor, but no alternative theory of causation is advanced. His operations appear to have been carried out under some difficulties, and for part of the time in the entire absence of skilled assistance. Local is preferred to general or spinal anaesthesia, and a half-per-cent. solution of novocain with adrenalin employed for the purpose. The rubber tourniquet is never used.

Rightly remarking that from the surgeon's point of view the size of the tumour is of less importance than the condition of the integuments at its base, the author nevertheless repudiates the axiom that incisions should be made through healthy skin only as unnecessary and often impracticable. His incisions, he informs us, are designed with the object of securing good " cosmetic " and functional results.

The operation commences with the formation of a rectangular flap some 8 to 10 cm. long on the upper and anterior aspect of the tumour, included between two vertical incisions over the cords and a cross cut above the level of the preputial orifice. This is carefully reflected and the penis, cords and testes then liberated in the usual way. From the lateral and posterior aspects of the neck of the tumour a rounded flap of healthy or diseased integuments is now fashioned, with its free edge strongly convex, extending if possible to a distance of four or five fingers' breadth from the anus. The tumour having been removed the anterior flap is used for enveloping the penis, its lower margin being stitched to any preputial lining that may have been preserved (often an insignificant quantity in patients of semitic origin), and its sides united in the same way on the under aspect of the organ over the urethra. The posterior flap is then adjusted as a pouch for the cords and testes by suitably applied clips and sutures. Every effort has of course been made to secure complete haemostasis. A glass or rubber drainage tube is inserted into one of the posterior angles of the wound, where it is allowed to remain for the first 48 hours.

None of the author's cases healed absolutely without suppuration, but there was never any serious complicating infection. Results are said to have been in every way satisfactory, and no reference being made to the subject of mortality it may be concluded that all the patients recovered. No information is furnished with regard to the weight or size of the tumours removed, but the only one of which an illustration is given was evidently of very large dimensions. The interesting fact is recorded that, contrary to the usual run of experience, in only one of the cases dealt with did the testes carry hydroceles.

J. J. Pratt.

Hudelo & Rabut. Les éléphantiasis de la vulve. [**Elephantiasis of the Vulva.**]—*Presse Méd.* 1927. Jan. 29. Vol. 35. No. 9. pp. 129–130.

The authors in a readable paper deal at moderate length with elephantoid conditions of the vulva, their aetiology, clinical characteristics, histology, diagnosis, and treatment. They recognize that

elephantiasis is never a primary idiopathic condition, and that even in cases where the cause is unknown or unrecognized that cause has produced in the affected area a condition favourable to elephantoid changes. They premise an indispensable lymphatic stasis which may be in part mechanical, as exemplified in filarial cases or in those which follow a surgical glandular ablation, or may follow upon chronic fibrotic changes in the lymph channels and glands as a result of bacterial invasion. For practical purposes, and the authors claim that the paper is eminently a practical one, they classify cases of vulvar elephantiasis in four categories—filarial, strepto-staphylococcic, venereal, and tuberculous—admitting at the same time that such a classification is purely arbitrary and aetiological, and stipulating that only in very rare cases is the strepto-staphyloccocic infection absent as at least a secondary factor.

Elephantiasis of filarial origin is dismissed in a few words, being, perhaps, a condition of which the authors have no special experience; they note that its progress is accompanied by general symptoms, sometimes severe, which testify to microbic causative participation. Cases in which strepto-staphylococcic infection plays the chief or only part are explained by the special liability of the vulva to multiple and recurrent trauma, and the consequent creation of "portes d'entrée" for microbic invasion. Venereal affections may be the starting point of vulvar elephantisis, playing either an exclusive rôle or preparing the way for secondary infection. Blenorrhagia, chancroid, syphilis (more especially in the tertiary stage), and ulcerating granuloma may act in this way by the production of local changes and lesions eventually involving serious lymphatic impairment. Under the name of "diffuse hypertrophic syphiloma" Fournier has described a tumefaction in which he regards the specific agent as the sole factor. Tuberculous elephantiasis of the vulva may have for its starting point an ulcerous lesion (mixed infection), or be altogether independent of ulceration—a hypertrophic tuberculoma; this second type of case is rare, having as a matter of fact been recorded in only eight instances.

There is little or nothing new in the sections of the paper devoted to the clinical study, histology, and diagnosis of the affections considered. In the purely streptococcal cases treatment by vaccines and massage may be useful; in syphilitic cases specific medication is of course indicated; but in the immense majority of cases of all types treatment is almost exclusively surgical, curettings, cauterizations, and the laying open and scraping of fistulous tracks, when present, being resorted to before excisions on a large scale are undertaken.

J. J. Pratt.

Rukawischnikoff (E.). Zur Biologie des *B. fusiformis* und der *Spirochaete Vincenti*. [**Biology of** *B. fusiformis* **and** *S. vincenti*.] —*Cent. f. Bakt.* I. Abt. Orig. 1926. Oct. 30. Vol. 100. No. 4-6. pp. 218–223. [18 refs.]

Studying the organisms in Vincent's angina the author arrives at the conclusion that there is a complicated life-history. Certain diplococcus-like elements commence the cycle, while the fusiform bacilli, spirochaetes and clumps of granules are developmental stages of these. The cycle may occur within or outside cysts, while resistant stages capable of renewing the cycle are described.

C. M. Wenyon.

Onorato (R.). Sur le phagédénisme à symbiose spiro-bacillaire. [**Phagedaena due to Spiro-Bacillary Symbiosis.**] – *Bull. Soc. Path. Exot.* 1927. Feb. 9. Vol. 20. No. 2. pp. 145–153.

Professor Onorato's views on this subject were given in this *Bulletin*, Vol. 20, p. 283; they are based on experience in Tripoli between 1912 and 1919. He names the condition phagedaenic symbiosis of Vincent and Le Dantec. The agents, which in his view are quite different organisms, are *Bacillus ledanteci*, which is peritrichal, very motile in vivo and more or less so in culture, and may by itself cause gangrene, and *Spirochaeta vincenti*. He rejects the name *B. fusiformis* as unsuitable (impropre). The spirochaete invades the tissues spreading into the intercellular spaces; the bacillus follows and kills the cells already damaged by the spirochaete. The affection is local, except when other organisms play a part; the B.–W. reaction is always negative. The phagedaenic ulcers produced are called active (florissant) or indolent according as the two agents or the bacillus alone are present; in the last instance the spirochaete has disappeared. The active ulcers are those which are spreading. The agents of the symbiosis are not found in the soil, but in the mouths of healthy as well as sick persons. The condition never develops on a healthy skin. The clinical manifestations of infection by the symbiosis are: the old hospital gangrene, phagedaenic ulcers, Plaut-Vincent angina, gangrenous stomatitis, noma, and spontaneous gangrene of the genital organs; other manifestations are some forms of pulpitis, foetid bronchitis, and enteritis. But there are other causes of most of these conditions. Prophylaxis consists in the hygienic care of the mouth and careful attention to skin lesions, however small. Treatment consists in careful cleansing of the ulcer and the topical application of arsenobenzol in glycerine, or salts of bismuth or iodoform, with attention to the general state and treatment of concomitant affections. [The paper deserves study in the original.]

A. G. B.

Müller (H.) & van Waveren (W. F. J.). Over tuberculose van het strottenhoofd bij Javanen. [**On Laryngeal Tuberculosis in Javanese.**] *Nederl. Tijdschr. v. Geneesk.* 1927. May 14. 71st Year. 1st Half. No. 20. pp. 2676–2682. [21 refs.]

The authors' conclusions are :—

(1) Laryngeal tuberculosis is about as frequent in Javanese as in European sufferers from pulmonary tuberculosis (about 30 per cent.).

(2) Contrary to European experience, the ulcerative (and not the hypertrophic) type of the affection predominates.

(3) Lupus of the throat, if occurring at all, is very rare.

(4) As in Europe, primary tuberculosis of the throat is very rare.

(5) The most frequently affected part of the throat in Javanese is the epiglottis (contrary to European experience).

(6) Affection of the cartilaginous parts of the throat, common in Europe, is rarely found in Javanese.

W. J. Bais.

YAMAZAKI (H.) & HOSOYA (Y.). Experimentelle Untersuchungen ueber die durch die sog. Malaria-mitteln verursachten pathologischen Veränderungen auf dem Oktavusgebiete. [**Experimental Investigations on Pathological Changes in the Peripheral Hearing Region, originating from Malarial Remedies.**]—*Far Eastern Assoc. Trop. Med. Trans. Sixth Biennial Congress, Tokyo, 1925.* Vol. 2. pp. 33–52. With 3 figs. on 1 plate.

There is nothing about malaria or hearing changes in this paper, which is a detailed pathological study of fine histological changes in the inner ear. Following KIRCHNER'S observations on quinine or salicylates as a cause of labyrinthine extravasation, and WITTNACK'S experiments on dogs where quinine caused a degenerative cochlear neuritis, succeeded by changes in the organ of Corti, and confirmed by later workers, LIND'S experiments using intravital staining in guineapigs, found that with good staining and well fixed specimens the results were always normal

Since the introduction of salvarsan treatment in syphilis a certain number of patients show unfortunate aural symptoms, which may be grouped as cochlear, vestibular, or mixed lesions. HAIKE came to the conclusion that the acoustic nerve was only indirectly affected, the results being due to spirochaetes locally, which without the salvarsan would ultimately have caused a neuritis. [This was the original explanation of EHRLICH concerning the 1 per cent. who showed aural symptoms after arsenical injections. He said that they had been insufficiently dosed.]

The authors have tested apes, dogs, cats, rabbits, and guineapigs, with various doses over different periods, using quinine, arsenic (Fowler's solution) and atoxyl and their derivatives. They detail fully the histological findings which in acute cases of rapid or massive poisoning were negative ; in prolonged cases (whilst a few were also negative) most showed localized degenerations of nerves and ganglion cells. A résumé states that :—

1. Given in certain doses stretched over sufficient time quinine, arsenic and their derivatives, have evil effects in the region of peripheral hearing
2. Whilst the intensity of the toxic symptoms and pathological changes essentially depend upon doses and duration, there are individual differences and there remains an impression that the distribution of the poison in the blood was not complete.
3. Blood effusion, inflammatory signs like round cell infiltration, exudations, and so on, were not found in the affected regions. On the other hand connective tissue changes and alterations in the carotid walls were noticed.
4. With quinine the cochlea was most affected, whilst with arsenic the vestibular nerves were most degenerated.
5. In advanced stages of poisoning obvious, pathological effects occurred not only in the cochlea but also in the vestibular and facial nerves.
6. The chief change in the affected nerves was segmental destruction of medullary sheaths, and degeneration of nerve fibres with swelling or shrivelling of ganglion cells, as well as the sensory cells of Corti's organ, the maculae and cristae.
7. A characteristic alteration of nerve bundles is such that they can be traced surprisingly through narrow channels, and in proximity to the ganglia and the periphery.

Whilst in the peripheral hearing organ the nerves and their endings were alone affected, in the brain and spinal cord and in the course of the eighth nerve there were slight changes in animals after two months of dosage, the ganglion cells shrivelling, their nuclei showing the fine

structure abnormally clear. Deiter's Nucleus was only slightly affected in the quinine animals compared with the atoxyl ones.

[The demonstration of these local degenerations is valuable, as anything influencing hearing or especially orientation is becoming increasingly important. Even before actual organic changes, such affections may cause trouble, as in the case of motorists or aviators. Haan has lately stated that the decreased sensitiveness of the otolithic reflex from oxygen want at great heights is probably the cause of the difficulties in steering and balancing which pilots notice.]

James Kerr.

Pearson (George H.). **On the Use of Hypertonic Saline Injections in the Treatment of Acute Opium Poisoning.**—*China Med. Jl.* 1927. Jan. Vol. 41. No. 1. pp. 71–73.

This treatment was used for a patient who after vigorous therapy of the usual kind appeared to be moribund. She suffered from intestinal stasis caused by the ingestion of crude opium and could be saved only by a movement of the bowels, which the usual methods failed to effect. By the use of an extemporized apparatus 200-300 cc. of 20 per cent. salt solution was introduced into a vein when the previously comatose patient came to, vomited and had a vigorous bowel evacuation. The cure was completed by a further stomach wash-out and walking exercise. The author believes that in hypertonic saline the practitioners of China have a new weapon of great value in the treatment of moribund opium cases. [This treatment was suggested to the author by the perusal of a paper by Dr. J. W. Ross, " Hypertonic Saline in Adynamic Ileus " published in the *Canadian Med. Ass. Jl.* for September, 1926.]

A. G. B.

Hoshizaki (S.). **The Number of Blood Platelets in Haemorrhagic Small-Pox and their Significance in the Prognosis of this Disease.**—*Jl. Oriental Med.* 1926. Nov. Vol. 5. No. 5. English summary p. 65. [In Japanese.]

The author studying 10 cases of haemorrhagic smallpox found that the number of blood platelets diminished in the early stages, increased gradually on the appearance of pus and continued to do so for 1–2 months. It is concluded that the number of platelets forms a good basis for prognosis and the author states that when they number 100,000 or more the prognosis is good.

A. G. B.

Payne (George C.) & Payne (Florence King). **The Incidence of an Edema Disease among Children in the Republic of Haiti.** *Amer. Jl. Hyg.* 1927. Jan. Vol. 7. No. 1. pp. 73–83. With 5 text figs. [9 refs.]

In 1924 Mann published an account of oedema disease among prisoners in Haiti (see this *Bulletin*, Vol. 22, p. 157). The cases described in the present paper were seen among a rural population of 4,439 persons near Port au Prince, during a period of one year. Of 34 cases of marked oedema in children, 6 were associated with severe

malaria, 2 with syphilis or yaws, and one with amoebic dysentery; in 25 cases no infection could be demonstrated and this group is called the idiopathic group. Among these 25 there were 11 deaths. The condition is widely recognized in Haiti as a cause of death in children. The table shows its age incidence; no case was seen in a nursing infant or in a child over five.

Age in months.	Males.	Females.	Total.
12	—	1	1
13–18	1	2	3
19–24	3	2	5
25–30	5	4	9
31–36	—	2	2
More than 36 ...	4	1	5
Total	13	12	25

Twenty-two were examined for the ova of intestinal parasites; one had ancylostomes, 8 ascarids and 6 trichurids. The early symptoms appeared to be emaciation and muscular weakness which might or might not be followed by general oedema. The post-oedematous stage resembled the pre-oedematous. It is noted that the peasant's diet probably never contains more than the bare minimum requirements of the accessory factors and these deficiencies are accentuated in the younger children. "The unfortunate child who has recently been weaned and has several older brothers and sisters is in no position to engage in the competition around the family cooking pots." His food is mainly starchy. There was no beriberi among the mothers, no evidence of cardiac dilatation or hypertrophy in the children, no evidence of neuritis or paralysis. The muscular weakness was due to defective nutrition of the muscles themselves rather than to nervous lesions. The treatment prescribed was milk, butter, green leaves, and ripe bananas, and under this régime one case described improved. The authors observe that great difficulty was experienced in gaining the peasants' confidence for examination and treatment. [There is no mention of anaemia or slow pulse.]

A. G. B.

Chaves (J. Avelino). Therapeutica cirurgica do mal de engasgo. [**Surgical Treatment of Mal de Engasgo.**]—*Brasil-Medico.* 1927. Jan. 15. Vol. 41. No. 3. pp. 43–51. With 7 text figs.

The first half of this article gives an account of the peculiar condition, going by the names of cardio-spasm, spasmodic dysphagia, oesophagismus, convulsive angina, amongst others, and considers its aetiology and symptoms, points which have already been reviewed in this *Bulletin* [Vol. 18, p. 301].

The author is a supporter of the infective theory of the causation of the disease, because of its epidemic prevalence in Brazil, the enlargement of the spleen and local glandular swelling. The case of a soldier, aged 23 years, is detailed. This patient had suffered for about three years; for the first two he experienced intermittently difficulty in

swallowing, having to follow each mouthful by a draught of water and often regurgitating both, though by standing up he could sometimes force the bolus down into his stomach. During the last year, however, practically everything he took was returned, till life became a burden and he applied for treatment.

The operation is described and consists in exposing the lower part of the oesophagus by a median incision below the xiphisternum, and dividing the circular muscle of the oesophagus down to the mucosa, twisting the oesophagus round and making another similar incision parallel to the first, through the part constricted. On the third day fluids are allowed by mouth, and on the fourth a purée of broth and tapioca, and gradually increase to solid food is permitted. The results are said to be most satisfactory. The illustrations are not very clear; the two line-drawings which best show the condition have unfortunately been reproduced upside-down.

H. Harold Scott.

Mayer (Martin), Borchardt (Werner) & Kikuth (Walter). Chemotherapeutische Studien bei der "infektiösen Anämie der Ratten." "Therapia sterilisans" mit den Arsenobenzolen Salvarsan und Arsalyt. [**Chemotherapeutic Studies on the Infectious Anaemia of Rats. Therapia sterilisans by the Arsenobenzols, Salvarsan and Arsalyt.**]—*Deut. Med. Woch.* 1927. Jan. 1. Vol. 53. No. 1. pp. 9–10. [11 refs.]

The authors have described a parasite of blood cells found in rats after removal of the spleen which produces pernicious anaemia. The human interest of the present paper is that these parasites are considered to be a species of Bartonella, the parasite of Oroya fever, and that a moderate dose of salvarsan or arsalyt is promptly curative, suggesting that these drugs may be curative also in that fatal fever of man. They have cultivated their *Bartonella muris ratti* on Noguchi's medium and have transferred it from spleenless rat to spleenless rat. In fact, all Robert Koch's postulates have been fulfilled for this parasite. In treatment by salvarsan or arsalyt, whereas 50 per cent. of the untreated spleenless animals died, those which received at the height of the anaemia either subcutaneously or per os small doses of these substances all recovered and the parasites disappeared within 24 hours. Similarly, a small dose prevented infection and the effect of it lasted a month. Other drugs were useless either in curative or prophylactic action. Many points are left uncertain but a further detailed communication is promised.

A. G. B.

Hawley (Paul R.). **Hill Diarrhoea.** *Milit. Surgeon.* 1927. Feb. Vol. 60. No. 2. pp. 140–145. [3 refs.]

Under the names hill diarrhoea, non-specific diarrhoea and Baguio diarrhoea this disease has been known in the Philippines since the American occupation. It occurs most frequently in Baguio at 5,000 feet elevation and also occasionally in the lowlands, in Europeans, seldom in natives. The hot season of 1926 was exceptionally severe.

After two months came a typhoon and the temperature at Manila dropped 15° to 20° F., with rain and chilly winds. Promptly hill diarrhoea appeared and within 2 weeks there were hundreds of cases, in both old timers and new comers. The symptoms were progressive anorexia and gastric indigestion, rapid loss of weight, abdominal discomfort, and frequently complaint was elicited of an irritating ache over the liver area or in the region of the right scapula. The Philippines treatment comprises castor oil, rest in bed, carbohydrate diet, bismuth subnitrate, calcium lactate and a stomachic. The author believes that astringents are unnecessary and bismuth harmful. The following treatment he has found effective even in persistent cases :—

" Sodium phosphate (2·0 to 3·0) is taken in a glass of hot water one-half hour before breakfast. This usually results in one thorough evacuation after breakfast with a feeling of relief and no further stools during the day. If the gastric indigestion is annoying, it may be relieved by ten to fifteen drops of dilute hydrochloric acid after meals. A preliminary purge with castor oil may be indicated if the condition has persisted for several days before the patient has come under treatment.

" Fats, fatty meats of all kinds and especially pork, and all highly seasoned foods should be eliminated from the diet until convalescence is well established. Lean steak, lamb chops, boiled vegetables, toast and tea or coffee may be taken in moderation. All mixed drinks and beer are contra-indicated ; but whisky, with or without soda, in small quantities taken infrequently appears to do no harm and does relieve the weakness. With this treatment, rest in bed is not necessary—certainly not after the first twenty-four hours in any but unusually severe cases. The patient must, however, forgo all late parties and spend nine or ten hours in bed every night. Moderate exercise, such as golf, is beneficial after the first day or two. Under this régime improvement is usually marked within forty-eight hours and the average case is convalescent within four or five days."

As to the etiology Major Hawley says that unquestionably there is no specific causative organism. The absence of bile from the stools, or its decided decrease, is constant and explains most of the symptoms. Fats are not digested and proteins imperfectly. The liver pains point to that organ as at fault. A quotation is given from " Manson's Tropical Diseases " describing the life of the average European in the tropics and its physiological effects on the liver, with the production of hepatic hyperaemia and proneness to inflammation on slight causes, such as chill. In every case of hill diarrhoea at Manila there was a history of chilling just before the onset, after exercise, or sleeping without covering in a draught or the blast of an electric fan. Warm clothing is essential to the treatment of these cases, and the author has a good word to say for the " cholera belt." Hill diarrhoea, then, is a mild hepatitis excited by chill in a person predisposed to hepatic congestion, and prevention consists in the avoidance of such congestion by exercise, moderation in diet, especially consumption of alcohol, and an occasional dose of a saline cholagogue. The term " hill diarrhoea " is a misnomer. The effect of altitude is merely that of temperature.

The editor adds an extract from a letter received from Major Hawley, from which it appears that he himself recovered on the treatment outlined above after 3 weeks of the usual treatment and loss of 18 lbs. weight, that other sufferers tried it with happy results and that though Major Hawley was doing administrative work his reputation spread till he had " a regular clinic of hill diarrhoea."

A. G. B.

Young (W. A.). **Unusual Case of Aortic Aneurism.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1927. Mar. 9. Vol. 20. No. 7. pp. 478–479. [2 refs.]

The case of a messenger [it must be presumed a native] who died suddenly after cycling. The macroscopic findings are described. Histological examination showed typical syphilitic aortitis. Such affection of the vascular system is not uncommon on the Gold Coast [see this *Bulletin*, Vol. 22, p. 982], where hard chancres are rarely seen and secondaries are often "skipped." The possibility is mooted of such symptoms being attributable to yaws.

A. G. B.

Orsini (Olyntho) & Machado (Lucas). Um caso de esthiomeno. [**A Case of Chronic Ulceration of the Vulva.**]—*Brasil-Medico.* 1927. Feb. 12. Vol. 41. No. 7. pp. 135–137. With 1 text fig.

This condition appears to be distinct from tuberculosis, syphilis, epithelioma, soft sore, or ulcerating granuloma of the pudenda. The patient had been a prostitute for many years, and the present condition began as an ulcer of the vulva nearly two years ago. This extended and the adjacent tissues became oedematous. There was a sensation of pain and heat, and some difficulty in micturition. Slight benefit resulted from an operation [the nature of which is not stated] but subsequently the ulcer increased again in size. The general condition was good. The ulcer was in parts phagedaenic, with sinuses and surrounding hyperplasia.

Antisyphilitic treatment with bismuth, mercury, and neosalvarsan at first gave benefit, but during the last three months there had been no change, though the Wassermann reaction was negative.

H. Harold Scott.

Tanon (Louis) & Jamot (E.). Une maladie des noirs de l'Afrique équatoriale : le lambo. [**Lambo. A Disease of Negroes in Tropical Africa.**]—*Bull. Méd.* 1926. July 31. Vol. 40. No. 32. pp. 900–902. [1 ref.]

This disease, which is not new, is a myositis attributed to staphylococci and was observed during the war in Cameroon and Ubangui; the Bandas of the last-named region call it "lambo." Laigret and Lefrou (1922) have published a good account of it [see this *Bulletin*, Vol. 20, p. 28] and the authors make several references to their paper. The same disease has been described from Indo-China but the authors join issue with Castellani when he makes it equivalent to muma fever of the Samoans and bungpappa of the Gold Coast, for they have never found filariae. There is a tendency to multiplicity of foci with suppuration in several muscles in succession. In their cases the buttock was the most usual site. They have found staphylococci in twelve cases and no other organism. They suggest that the disease results from the infection of a deep haematoma or contusion by a microbe circulating in the blood, but have not been able to verify this hypothesis. Surgical treatment has in their hands proved effective.

A. G. B.

Nicolas (Ch.). A propos du Lambo. [**A Note on Lambo.**]—*Bull. Soc. Path. Exot.* 1927. Jan. 12. Vol. 20. No. 1. pp. 4–6.

Lambo is described by Tanon and Jamot as a disease of negroes in Equatorial Africa. The author has observed what he considers to be the same disease in New Caledonia in the white and yellow races as well as in natives of the island. He describes two cases: (1) A woman with a deep-seated swelling of 3 weeks' duration, no fever and little general disturbance; the swelling increased till it was incised a fortnight later with the exit of creamy pus, in which a staphylococcus was found; the abscess healed without drainage; (2) a swelling primarily of the right buttock following a boil, then of the right side of trunk generally, with temperature over 40°; the author gave two injections of Propidon (Delbet) and the swelling in a few days disappeared. The author thinks that this disease is one of climate rather than race and is due to a staphylococcus. There is little fever and no pain. In every case but the one cited incision was called for.

A. G. B.

Parodi (Silvio E.). El *Rhinosporidium Seeberi* en nuestro país. [*Rhinosporidium seeberi* **in Buenos Aires.**]—*Bol. Inst. Clin. Quirúrg.* Buenos Aires. 1926. Vol. 2. No. 14, 15 & 16. pp. 492–510. With 19 figs. [10 refs.]

A man, 19 years of age, for a year experienced difficulty in breathing, especially during sleep, when he had to breathe with his mouth open. A pedunculated polypoid papillomatous tumour, the size of a cherry, of the left lower turbinate was found and removed. Examination revealed the fact that it was due to *Rhinosporidium seeberi*.

The remainder of the paper is devoted to a detailed description of the parasite and the histological changes induced. The author confirms in all points the work of Ashworth.

H. Harold Scott.

Malagueta (I.) & Sampaio (Oséas). Syphilis hepato-peritoneal com esplenomegalia palustre. [**Syphilitic Hepatitis with Ascites, accompanied by Malarial Splenomegaly.**]—*Arch. Brasileiros de Med.* 1927. Jan. Vol. 17. No. 1. pp. 1–8.

An interesting case is recorded. A man of 40 years, who denied alcoholic indulgence or venereal disease but had had malaria, suffered from diarrhoea for three months, passing latterly mucus with much tenesmus. The abdomen then became enlarged and, when examined at hospital, was tense all over, but a tumour could be made out in the left hypochondrium. 5,300 cc. of yellowish ascitic fluid were removed and the tumour was found to be the spleen; the liver could not be felt and by percussion was not enlarged. The serum gave a positive Wassermann reaction (++) and the ascitic fluid a stronger reaction (+++). Between March 31st and May 23rd he was tapped six times, and, in all, 49 litres of fluid were removed, on the last occasion 11 litres. On June 1st antisyphilitic treatment was begun. Five days afterwards 8 litres were taken away and 6½ litres later. The symptoms then improved and the fluid did not re-accumulate.

The authors discuss shortly the diagnosis. They do not consider that the hepatic condition was polylobular cirrhosis, but a chronic perihepatitis and peritonitis due to syphilis, and the enlargement of the spleen to be malarial. [The latter diagnosis was apparently made on the patient's statement; there is no confirmation of it in the account given of the physical and blood-examination.]

H. Harold Scott.

Lodato (Gaspare). Cinque casi di foruncolosi curati con l'autopioterapia. **Five Cases of Furunculosis treated by Autotherapy.** *Ann. Ital. Sci. Med. Colon.* Tripoli. 1927. Jan. Vol. 8. No. 1. pp. 35–37.

The material for treatment was obtained by emulsifying a fair-sized drop (una buona goccia) from a pustule in 5 cc. of a "carbolic acid solution made up for hypodermic use."

After being left for a few days, 1 cc. was injected hypodermically on alternate days; 12–18 injections were given. The initial dose caused rise of temperature in one patient, vague discomfort and pruritus in a second, no adverse symptoms in the others, and the results are recorded as very good; in the one case where time is mentioned there has been no recurrence of the boils during the 8 months which have elapsed since the injections.

H. Harold Scott.

The Leyden Institute of Tropical Medicine.
[Reproduced from *Acta Leidensia*, Vol. I.]

[illegible] C. **The Leyden Institute of Tropical Medicine.** *Acta Leidensia.* 1926. Vol. 1. pp. 1–9. With 14 plates.

The Leyden Institute of Tropical Medicine and Laboratory for the Professor of Tropical Medicine at the Leyden University are housed in an old mansion of the 16th and 17th centuries, which had to undergo extensive alterations. The illustration shows the unchanged façade

The Carmichael Hospital for Tropical Diseases, Calcutta.

The School of Tropical Medicine, Calcutta.

[Reproduced from the *Annual Report of the Calcutta School of Tropical Medicine for 1926.*]

It is divided into three departments which are here described. A number of photographic plates show the internal arrangements. Some 12 patients can be accommodated in the wards. The Director is Professor of Tropical Hygiene.

A. G. B.

CALCUTTA. **Annual Report of the Calcutta School of Tropical Medicine, Institute of Hygiene and the Carmichael Hospital for Tropical Diseases 1926.** [MEGAW (J. W. D.), Director.] **Also a Brief History of the School and a Report for the Years 1920-1925.**—pp. iv+152. With 28 plates (1 coloured) & 1 chart. 1927. Calcutta: Bengal Govt. Press. [For Official Use only.]

This is something more than an annual report, since it includes a history of the School from its inception and a review of the first five years of its active work.

"There is a tide in the affairs of men which taken at the flood leads on to fortune"; but no such tide was moving when, in 1910, Major Leonard ROGERS (as he then was) launched his proposal for the formation of a school of tropical medicine for Bengal. That was in the days when medical establishments in India were still ruled and overshadowed by state secretariats not very much awake to the importance of natural science, who held the belief that the habits and methods of observation necessary to the investigation of natural phenomena can be imparted in courses of lectures—a belief not yet uprooted in official circles. So in reply to ROGERS' proposal, which was warmly backed by the Director-General of the Indian Medical Service, the local Government gave a comfortable drowsy consent—classes in tropical medicine might be instituted in the Calcutta Medical College, under the tutelage of the Professors of the College "in addition to their own duties." ROGERS, however, had a real school of tropical medicine in mind, not a foolscap-paper school—a real school, with laboratories and hospital, a life and soul of its own, and an open atmosphere of observation and research. So, settling down to work with the intrepid resolution of Ajax, the address of Ulysses, and the patience of Job, and securing step by step the support of the Director-General of the I.M.S. (Sir Pardey LUKIS), the Indian Research Association, and (above all) the powerful mercantile community of Calcutta and the enterprising milling and mining and planting fraternities of Bengal, in the course of ten years he saw his dream realized.

The finished object of his achievement includes: (1) A School of Tropical Medicine with 6 professors and their several assistants; (2) a Tropical Diseases Hospital (the Carmichael Hospital, of more than 100 beds), the entire cost and equipment of which was raised by public subscription; (3) a Research Section with an Endowment (subscribed very largely by the commercial community of Bengal) of nearly £140,000, calculated to maintain 7 whole-time investigators and their assistants; and (4) an Institute of Hygiene with 3 professors and assistants. Its later adjuncts include a Pasteur (antirabic) Institute, and an electrotherapeutic department.

How the object was achieved—the local disputes and obstructions, the larger financial difficulties, and, on the other hand, the ever-present help of the Indian Research Association and the overflowing generosity of the local public—is here recorded in full detail.

Those parts of the Report dealing with the scientific work carried on in the School in the first five years of its existence 1921-1925 have been reviewed in this *Bulletin* from time to time and, being now quite familiar and in some cases famous, need not detain us.

The Annual Report for 1926 contains reports from 9 professors, 6 whole-time researchers, and the 2 adjunct departments. These again, outside " the trivial round, the common task " of each returning day, are for the most part the official record of work that has been communicated to the public during the year, and if not already noticed, is due for notice in the appropriate sections of this *Bulletin*. The principal subjects investigated by the professors during the year are Tick typhus ; the long neglected subject of skin-diseases ; intestinal protozoa and their associations, Leishmania infections, the endocrine relations of protozoon infections, and streptothrix infections in rat-bite fever ; the pharmacology of antimony derivatives and of carbon tetrachloride, the deterioration of digitalis in the tropics, the deleterious effects of potable spirits, drug addiction, and the chemistry and pharmacology of certain indigenous Indian drugs ; blood-grouping, and serum reactions in leprosy, rat-leprosy, and syphilis ; antimalaria and antimosquito studies, and a census of Calcutta rat-fleas ; water-purification, efficiency of filters, the food-value of the *Singhara* nut (*Trapa bispinosa*), and standards in *ghi* analysis.

Among the devices for facilitating study mentioned by the Director we note with pardonable gratification that " a résumé of recent work on each of the sections of tropical medicine has been made available for the students and staff by the simple plan of dissecting two copies of the *Tropical Diseases Bulletin* and bringing together the abstracts which deal with each subject. These are kept in files which are always available for reference." For us indeed *laborum dulce lenimen*.

In the Special Research Section (financed from the Endowment Fund raised largely by public subscription supplemented by annual grants from the Indian Research Association, and also from several Industrial Associations) important investigations have been continued during 1926 in kala azar, on the breeding of sandflies, and on kala azar therapy; on the epidemiology and mass diagnosis and the treatment of hookworm and the biology of the hookworm larva ; on the endemiology and epidemiology of cholera ; on the causes influencing the incidence and range of leprosy ; on the varying susceptibility of different breeds of rabbits to insulin ; on the geographical distribution of filariasis, on concurrent septic infections in filariasis, and on the action of chemicals *in vitro* upon filaria embryos—a worthy record.

A. Alcock.

CALCUTTA. **All-India Conference of Medical Research Workers held at Calcutta on 15th to 17th December 1925.**—43 pp. 1926. Delhi : Govt. of India Press.

The Conference was attended by 38 delegates representing all parts of India. A great diversity of researches in progress was discussed ; the varied items are here classed under forty-two headings, and they run through all the gamut of tropical disease. In addition to the many researches now under way the Congress approved one on skin-diseases, on the representation of Major ACTON, who instanced the opportunities afforded by his large out-patient department in Calcutta for studying the suspected relation between certain skin-diseases and

intestinal intoxication. Colonel CHRISTOPHERS' scheme for the establishment of permanent machinery for the prevention of malaria was, perhaps, the principal subject of original discussion. The scheme, which is described in an appendix, postulates a permanent staff, consisting of a Director and Assistant Director, an Entomologist, two officers for Field Research, and in each case the necessary and respective subordinates, and also including an advisory Malaria Engineer; a Central Bureau, including a Library, a small Museum, a room for reserve and study collections of insects, and at least two laboratories; and a properly equipped Field Experiment Station. Working in collaboration with this Central organization there would be, in each Province, at least one efficient malariologist with all the necessary outfit, provided by the local government of the Province. The scheme was approved in a formal resolution. Among questions of domestic interest discussed was that of disseminating more widely the results of original work done in India; a pointed illustration of the pertinence of this question was given, and relevant action was taken in a formal recommendation that to facilitate distribution a reduction might be made in the price of authors' copies of reprints from the *Indian Journal of Medical Research*. [It does not seem to have occurred to any delegate to refer to the services rendered by this *Bulletin* in the timely diffusion of the published results of Indian Medical Research. But virtue is ever its own reward.] Another question of domestic concern is that "lack of sufficient first-class research workers" in the country is even now impeding progress, so much so that the Conference formally recommend recruitment for the Research Department in the open market. The Conference appears to have strayed across the political boundary in recommending the Scientific Advisory Board to urge the Government of India to invite the Rockefeller Foundation "to make a survey of medical education and research in India."

A. A.

MEGAW (J. W. D.). **Address.**—*Proc. Assam Branch Brit. Med. Assoc. Annual Meeting, Silchar, 1st and 2nd March, 1926.* pp. 47–55.

An interesting address from the Director of the School of Tropical Medicine, Calcutta, in which he touches in turn antimalarial work, kala azar, dengue and sandfly fever, tick typhus and epidemic dropsy and beriberi. Of dengue and sandfly fever he suggests that the two diseases should be classed provisionally in one group and called "Sand Fly Dengue" and "Mosquito Dengue."

A. G. B.

BALFOUR (Andrew). **Some Tropical Lacunae.**—*Jl. Trop. Med. & Hyg.* 1927. Apr. 16. Vol. 30. No. 8. pp. 97–106. [73 refs.]

A lecture which Dr. Balfour delivered at "the Universities of Leiden, Utrecht and Amsterdam" in March, 1927. The mention of some of the topics discussed will indicate its scope: Acclimatization of the white man in the tropics; tropical neurasthenia; native dietaries as predisposing causes of disease; bacteriological analysis of water in the tropics; clothing for Europeans in the tropics. Nature of the malaria toxin; causation of blackwater fever and the salivary secretion of biting insects; several problems in the life history of the malaria parasite; the virus of dengue; yellow fever; filariasis; tropical

typhus; treatment of plague; life cycle of the relapsing fever spirochaete; leishmaniasis; trypanosomiasis; beriberi; pellagra; sprue; splenic abscess.

The discussion of these lacunae stimulates thought and the long list of references enables the reader to follow up any line which appeals to him. It may be noted that apart from leishmaniasis and other causes of splenomegaly Dr. Balfour does not think that the enlarged spleen is an exact guide to the prevalence of malaria in a community and he draws attention to the fact that NOGUCHI's leptospira is by no means established as the agent of yellow fever.

A. G. B.

VALENZUELA (A. J.). Die Republik Ecuador und ihre Pathologie. [**The Pathology of the Republic of Ecuador.**] *Arch. f. Schiffs- u. Trop.-Hyg.* 1927. Jan. Vol. 31. No. 1. pp. 13–20.

Ecuador is not excessively hot partly because of the Humboldt or Peruvian current and partly because of the high chain of the Andes not far from the coast. The climate is therefore varied: on the coast and to the east of the Andes the vegetation is tropical and the temperature in the hot months reaches 30° C. (86° F.); in the valleys of the Andes the average temperature is 10–12° C. It follows that the pathology is varied. A large number of diseases and disease conditions is mentioned, without figures. It will be convenient to note first what is absent. The diseases recorded as not found are—kala azar, verruga and Oroya fever, rat-bite fever, cholera, undulant fever, rabies, filariasis, bilharziasis, actinomycosis. Malaria occurs on the whole coast and in some of the deepest valleys; in the winter months it becomes epidemic. Tertian is the most frequent of the three forms. Blackwater fever is recorded. The author notes that *Cinchona succirubra* comes not from Peru as is usually believed, but from Loja in the south of Ecuador. American trypanosomiasis is found in certain coast places and in the east but is rare compared with its frequency in other South American lands. [KRAUS has shown that as far as records go this disease is common nowhere in South America.] Dermal leishmaniasis is found in the warmer parts; it requires further investigation. Yaws has been known since the time of the Spanish conquest, especially in the warmer regions; syphilis is also prevalent. Yellow fever has occurred at longer or shorter intervals since 1740. It was last introduced in 1902 and maintained itself till it was banished by sanitation. It was in Guayaquil that NOGUCHI (1918) discovered its supposed agent, *Leptospira icteroides*. Weil's disease "doubtless" occurs in Guayaquil; *L. icterohaemorrhagiae* was here found in rats. Dengue occurs from time to time. Smallpox has been practically banished by vaccination. Scarlet fever and measles occur epidemically over the whole country, but are far more serious in the Andes region than elsewhere. Whooping-cough heads the list as a cause of child mortality. Typhoid and paratyphoid are everywhere prevalent; typhus in the Andes zone. The great influenza epidemics visited Ecuador, but were not so lethal as in Europe. Bubonic plague was introduced in 1908, and reached all places on the coast and some inland; it still lurks in Guayaquil and other less important places. Diphtheria is prevalent but milder than in other lands. Anthrax is seen in the coast provinces in man and beast. Tuberculosis is general. Tetanus is widespread

especially in the country regions. Leprosy, introduced by the Spaniards, is general but less frequent in the mountain regions. Dysentery is seen everywhere, especially on the coast, both bacillary and amoebic; liver abscess is more frequent in the mountains than elsewhere. Ankylostomiasis is serious, especially on the coast; other prevalent worms are Ascaris and Trichocephalus, *Hymenolepis nana*, *Taenia solium* and Bothriocephalus. Cysticerci are seen in brain and muscles. *Paragonimus westermanii* occurs in two of the coast provinces. Myiasis is produced by two flies, *Chrysomyia macellaria* and *Dermatobia cyaniventris*, and probably other species. Chigger ulcerations are common and another form which is neither leishmanial, framboesial, nor syphilitic, and is possibly a form of sporotrichosis. Sprue is seen, but not often. Dermatomycoses are frequent, as well as dermatitis bullosa plantaris and an affection commonly known as "miado de hormiga or de grillo." Polyneuritis [the word printed is Polyarthritis] is frequent and is attributed to malaria, alcohol, and especially beriberi. Pellagra is seldom seen. For further detail the paper must be consulted.

A. G. B.

Magli (Pietro). Brevi notizie nosografiche sull' Oltre Giuba Italiano (zona di Afmuadù). [**Notes on the Diseases of Trans-Jubaland.**]—*Arch. Ital. Sci. Med. Colon.* Tripoli. 1927. Jan. Vol. 8. No. 1. pp. 29–32.

Brief notes on the diseases prevalent in the Afmuadù district. For so small a population their ailments are many. Malaria comes first, prevailing from March to June and from November to January. Subtertian is the most common and pernicious forms not infrequent; blackwater fever was not encountered. The common mosquitoes are *A. costalis* and *A. funestus*, *Aëdes egypti* and *Culex fatigans*, together with numerous Theobaldia. Syphilis is very widespread; yaws also but less than on the coast. Dysentery is common, as would be expected in a place where the water for drinking is used also for animals and for the natives to bathe in. Pulmonary tuberculosis is more prevalent than is generally believed. Relapsing fever "cannot be excluded," though the author has not himself seen a case there. Tropical ulcer and phagedaenic ulcer are fairly common, and several cases of Madura foot and cutaneous fungoid diseases were met with. Of helminthic affections elephantiasis and infestations with Ascaris, Trichuris, *Hymenolepis nana* and *Taenia saginata*, but not ankylostomiasis nor schistosomiasis.

Bites by snakes (*Naja nigricollis* and *N. sputatrix*, and various species of Zamenis) and by spiders and scorpions are not infrequent. "These were regarded always as unimportant injuries."

H. Harold Scott.

Procter (R. A. W.). **Medical Work in a Native Reserve.** – *Kenya Med. Jl.* 1927. Jan. Vol. 3. No. 10. pp. 284–289.

The Native Reserve in question, under the medical care of Fort Hall in the Kikuyu Province, covers an area of about 3,000 square miles, and has a population of nearly half-a-million. Until this year there has been one Medical Officer who could devote only a part of his time to work in the reserve; there is now a second. A hospital exists at

Fort Hall and 12 dispensaries in outlying districts staffed by native dressers who give bismuth injections for yaws and treat ulcers and minor ailments. They are visited as often as possible by the M.O., but some get only a monthly inspection, and it is noted that the present type of dresser is of little use unless he is closely supervised. An account is given of the native beliefs and the ways of the medicine man, which shows that it is difficult for the native to appreciate the methods of the European doctor, and the need for a knowledge of native customs by the hygienist is shown by the statement that a native may not mix his stool with that of another person, for should he do so it will cost him a goat to obtain purification, so that he has a natural prejudice against using a latrine. The mutilation of the sexual parts of girls at about the age of 12 with its resulting deformity is undoubtedly one of the causes of the high maternal and infantile mortality amongst the Kikuyus.

There is not much about disease. Adults and adolescents suffer from what resembles Egyptian splenomegaly, the chief features of which are an enlarged spleen of stony hardness and an irregular temperature. Quinine is without effect and puncture of spleen and liver has not revealed leishmania. Of another disease the account is admittedly vague; it occurs in quite young children "of an extraordinary light colour" with swelling of the feet and a history of slimy motions. The pallor increases and "the pigment seems to be concentrated into a curious black desquamation which is most noticeable on the arms and legs." It is usually seen at dispensaries, rarely at the hospital, and is nearly always fatal.

A. G. B.

Lefrou (G.). Contribution à l'étude de l'utilisation de la main-d'oeuvre indigène. Considérations médicales sur le personnel des chantiers de construction du chemin de fer Congo-Océan. [**The Utilization of Native Labour in the Construction of the Congo-Ocean Railway. Medical Considerations.**]—*Ann. de Méd. et de Pharm. Colon.* 1927. Jan.–Feb.–Mar. Vol. 25. No. 1. pp. 5–51. [4 refs.]

Since the Congo ceases to be navigable below 400 kilos from the sea a railway was needed to bring inland products to the coast; the selected termini were Brazzaville and Pointe-Noire, the total length of line being 520 kilos. The author is concerned with the coast section, a very humid and hot district. The population of the district traversed is 70,000, and in the first year, 1924, all labour was recruited in the neighbourhood. In 1925, other districts were called on to furnish contingents, 4,000 out of a total 6,400, and some of these had a two months' journey to reach the scene of their work. An account is given of the chief diseases affecting the labour force and the dietary arrangements. During 1925 bacillary dysentery, of which previous epidemics had occurred here, caused 30 per cent. of the deaths, but it is noted that whereas among the local natives the dysentery mortality was 0·5 per cent. among the introduced natives it was 5 to 8 per cent. Attempts were made to check the disease by administration of vaccines —anatoxin of Dumas and entero-vaccines, but without success, a failure which is attributed to the massive contagion and the poor resistance of the victims. The best results in treatment were obtained with calomel.

There were 765 cases and 411 deaths. Next in importance came lung affections due to the pneumococcus, causing 18 per cent. of the total mortality; the case fatality varied from 52 to 65 per cent. The cases were most numerous at the change of seasons; vaccination was tried here with results which are as yet uncertain. The third place was taken by beriberi and malnutrition (misère physiologique) causing 13 per cent of the total mortality. In 1926, among an average effective of 3,000 men between January and May, there were 374 cases of beriberi and 105 deaths. At this time the carbohydrate fraction of the ration was one-third manioc and two-thirds rice and the protein fraction smoked meat or fish. The beriberi was of the oedematous form; polyneuritis was very rare; cases improved rapidly in hospital when ground nut and cod-liver oil were given. Many persons complained of failure of vision, which is attributed to lack of fat-soluble vitamins. Details are given of the constitution of the ration and of the efforts to improve it, but it is clear that the methods employed were faulty. (1) The food was distributed twice a week, and on each occasion the natives ate as much as they could the first day. (2) Owing to waste in several directions the full amount never reached the recipients. (3) Owing to the difficulty in providing food the quantities delivered were much below the scale. (4) The preparation of the food was faulty; the manioc was often cooked whole instead of first being ground to flour.

Much disability was caused by ulcers of the legs which caused 18 per cent. of the total morbidity; the smallest lesion often became the site of a tropical ulcer.

The author points out that native workmen should receive each a cooked ration and that its preparation should be superintended by a European; it appears that he advised this course but his advice was not followed by the administration, which also was unable to give effect to the recommendation, which the author stresses, that mixtures of races in one camp should be avoided. Other points dealt with concern the recruiting of labour and the period of its engagement; since most of the losses occurred in the first 6 months it is suggested that when practicable imported natives should be engaged for 18 rather than 12 months.

A. G. B.

DA COSTA (Peregrino). Epidémiologie de Macao. [**Epidemiology of Macao.**] *Far Eastern Assoc. Trop. Med. Trans. Sixth Biennial Congress, Tokyo, 1925.* Vol. 2. pp. 1095–1116. With 1 chart in text.

Macao, the first foot-hold of Europe in China, and now containing 140,000 people, came into Portuguese hands in 1557, but it is not till 1850, when cholera broke out, that there is any record of epidemics. In the last 70 years such epidemics, though often introduced, have been of short duration and low fatality. The present paper deals in turn with plague, cholera, smallpox, cerebrospinal meningitis and influenza.

The first epidemic of plague dates from April, 1895, a year after its appearance at Canton and Hong Kong. It lasted till July and appears to have caused 1,200 deaths. With the exception of the years 1910 and 1911 plague deaths were registered each year till 1915, the disease becoming epidemic in spring and dying away in the hot summer months.

Local conditions are such that importation by sea would be a frequent occurrence. Whereas at Hong Kong the annual recurrences lasted 6–7 months, at Macao they rarely exceeded 4, and since 1915 there has been no case of plague though the disease persisted at Hong Kong till 1923. These comparisons are of interest, because the territories on either side of the mouth of the Canton river are in constant communication. With the exception of a few years the plague mortality at Macao was not large enough sensibly to affect the normal mortality curve. The annual epidemics commenced with a temperature of about 20° C., developed with a temperature of 25° and high humidity, and declined when the temperature reached 30° and the humidity was below 50°. Leitão states that *M. decumanus* and *M. rattus* are both present at Macao, the latter being rare. The author has found *rattus* to be present in 30 per cent. proportion and *decumanus* in 60 per cent. The information about rat fleas lacks precision.

The epidemic of cholera of 1850 was part of the pandemic which began in 1846 and spread all over the world. Between this and 1866 there were 4 small epidemics, but from this year to 1883 no case occurred though the disease was prevalent in China, including Hong Kong. Since 1916 no case has occurred at Macao. Of the 9 epidemics the last six were attended by a mortality of only 10–30. The disease made its appearance in early summer with the heavy rain.

Smallpox is impossible to eradicate owing to the large (literally) floating population of 16,000 souls and the shifting population which exceeds 2,000,000 a year. In the years 1907, 1917 and 1924 there were 105, 124 and 195 deaths. Neither influenza nor cerebrospinal meningitis have seriously affected Macao.

A. G. B.

Melenev (Henry E.). **China's Past and Present Opportunities in Tropical Medicine.** *China Med. Jl.* 1926. Dec. Vol. 40. No. 12. pp. 1189–1203. [52 refs.]

An interesting and informing address delivered at a Conference of the China Medical Association, Peking. The author after pointing out that oriental medicine, because of the living conditions of even the northern oriental peoples, embraces hygiene and tropical medicine both in scope and point of view, divides the years during which western medicine has been practised in China into 4 periods.

(1) The *Pioneers*. This dates from the arrival of the first physicians of the East India Company late in the 18th century, one of whom (Pearson) introduced Jennerian vaccination (1805). In 1836 was founded the "Medical Missionary Society in China." In 1870 Robert Hart inaugurated the "Customs Medical Reports," the medium of publication of Manson's work and for many years the only periodic record of observations on disease in China.

(2) The *Manson* period. An interesting account is given of Manson's work in China which will be passed over here because it may be read in ampler detail in the recently published "Life and Work of Sir Patrick Manson" (Manson-Bahr and Alcock). As one illustration of Manson's pre-eminence the author writes—"It would be foolish to believe that insect transmission of disease would not yet have been proved without Manson's work, but he was so far ahead of his time that it remained for him, seventeen years later, to be the

first to accuse the mosquito of its second great offence, malaria transmission." The only other event of this period which is noted is KITASATO's discovery of the plague bacillus (1894).

(3) The period of *Observation*. This dates from the BOXER Rising (1900). The increased security of the foreigner and the stimulus to mission work led to a rapid increase in the number of British and American physicians in China, with the *China Medical Journal* as their medium of publication. Most devoted themselves to surgery and hospital administration, but a few turned to their microscopes and biological problems. Thus AIRD (1905) obtained leishmania by spleen puncture: LOGAN (1905) identified the egg of *Schistosoma japonicum*: GODDARD (1907) found heavy *Fasciolopsis buski* infection in Chekiang: LAMBERT (1910 & 11) identified urticarial fever as schistosomiasis. In 1907 a Research Committee of the C.M.M.A. was formed. The culmination of the period came with the publication of JEFFERYS and MAXWELL's "Diseases of China," which "stands as a milestone in the history of medicine in China."

(4) The present period, that of *Investigation*, which began with the foundation of the Republic. The first important participation of western trained Chinese physicians in disease prevention was now seen on the occasion of the outbreak of pneumonic plague in Manchuria, with Dr. WU LIEN TEH as Director. In 1913 official sanction was given by the government for the dissection of human bodies and the performance of autopsies in the 70's MANSON had to leave a secret post-mortem examination and run for his life, and medical schools began to function on broader lines. In 1918 the Epidemic Prevention Bureau was established in Peking. In this period lay the work of BARLOW who, released from his regular duties for two years, worked out the life history of *Fasciolopsis buski* and established the curative value of carbon tetrachloride: that of CORT, GRANT and STOLL, who demonstrated the practical absence of hookworm in North China and its association in Central and South China with vegetable raising and the silk-worm industry, and noted the reduction of larvae in manurial excreta with storage: of WU LIEN TEH, who indicated the marmot as a source of pneumonic plague: of FAUST and KHAW, who have shown that the fish-raising industry is responsible for the high incidence of Clonorchis infection in Kwangtung Province. The author's own work on schistosomiasis calls for mention here. It is noted that full time chairs of hygiene have been established in four medical schools.

Finally, the author discusses some lacunae in knowledge and failures to apply what is known. He points out that very little is on record about the anopheles of China. In Central China only one species has been reported. Cholera is one of China's scourges, in 1919 the deaths were estimated at 300,000, but no adequate preventive steps are being taken. There follows a series of questions relating to schistosomiasis and the infection of the rice farmers. It is asked why filariasis in Central China, with Culex ubiquitous, is limited to certain areas, and why leprosy has its peculiar distribution. Splenomegaly with anaemia needs investigation and its relation to cirrhosis of the liver with ascites, which is common in China. What is the source of undulant fever in China? Of beriberi he asks:—

"Why do nearly all the cases of beri-beri seen in Peking occur in students who come from the south and who acquire the disease here while living on the same diet on which they thrive in health at home?"

"Those problems which are peculiar to China will be solved when, and only when, they are deliberately attacked by those among us who realize that the searching out of ultimate causation is more important than the routine treatment of disease."

The paper ends with a useful list of references.

A. G. B.

Joannidis (Georges Sp.). Quelques notes épidémiologiques sur le département de Messénie. (Faune malacologique et vulnérante, paludisme, F. typhoide, leishmanioses, lèpre). Août 1926. [**Epidemiological Notes on the Department of Messenia, Greece.**]—*Grèce Méd.* 1926. Sept.–Oct. Vol. 28. No. 9–10. pp. 33–36. [13 refs.]

The author, who writes from the Institut Pasteur Hellènique, says that Dr. Adamopoulos has recently described cases of kala azar, microscopically controlled, from this part of Greece and Drs. G. Blanc and Caminopetros have found oriental sore at Neapolis in the neighbouring department of Laconia. Messenia forms the western of the three Peloponnese peninsulas which project southwards, Laconia occupying the two other peninsulas. To the south again is Crete and between them the island of Cerigo in both of which leishmaniasis is found. Messenia is one of the warmest parts of Greece; it is densely peopled, well cultivated and well watered. Laconia is dryer and much less populous.

The author examined two rivers in Messenia for molluscs, looking especially for Bullinus which occurs in Crete. He failed to find Bullinus but obtained numerous *Limnaea truncatula*, *L. palustris*, *L. limosa*, *Planorbis complanatus* and other genera. The abundance of *L. truncatula* explains the great frequency of distomatosis in sheep in Messenia. Of mosquitoes he captured *Aëdes argenteus* (abundant), *Anopheles superpictus* (numerous) and *A. maculipennis* (a few specimens). *Phlebotomus papatasii* were numerous and *P. sergenti* rare. Messenia is one of the most malarious departments in Greece. Two outbreaks of typhoid are mentioned in small towns on the east and west shores of the Gulf of Messenia, connected by a service of boats; the water supplies were probably contaminated.

Kala azar was found in Hagia Anna, a suburb of Calamata. Here the houses have large gardens and these are rented for purposes of trade by people from outlying villages for a few years at a time. Eight cases have been diagnosed since the disease was first noted here in 1922. Kala azar is met with also along the railway from Pyrgos to Calamata and elsewhere in the department. He gives data of 39 cases [but nowhere states that parasites were found]. The ages varied from one to eight years, with the exception of one of 10 and one of 14 years. All but one child came from poor families. Domestic animals were numerous, but the people objected to any bacteriological examination of them; all appeared healthy. Phlebotomus and other biting insects were seen in the houses. In most of the cases the disease was first noted between March and July. The incubation appeared to be 8 months or less. Two children, of 8 and 10, at Calamata were found to have oriental sore (Leishmania found); they came from Laconia where they were probably infectors.

Cigalla reported 97 lepers from this region in 1858. Adamopoulos has found about a dozen cases of nodular leprosy, always more than one in a family; most of these are now in the leper colony at Spinalonga, Crete [see this *Bulletin*, Vol. 22 p. 568].

A. G. B.

Gutierrez (Perpetuo Dionisio) & Gutierrez (Aureo Francisco). **An Analysis of 76,532 Cases admitted to the Philippine General Hospital.**— *Jl. Philippine Islands Med. Assoc.* 1926. Nov. Vol. 6. No. 11. pp. 359–372. With 8 charts.

The disease that tops the list is ascariasis, 15·82 per cent. of all cases. [We are not told whether a faecal examination is always made.] Next comes pulmonary tuberculosis, 6·16 per cent., and if all tubercular diseases are added, 9·02 per cent. Amoebic dysentery comes third. Fortunately, liver abscess is an unusual complication: it occurred in 3·11 per cent. of cases of amoebic dysentery. If one adds in half the cases of dysentery of undetermined origin, the percentage becomes 5·93, nearly as high as pulmonary tuberculosis. Influenza comes next; a chart shows that prior to the rise of influenza dengue, prevalent in 1913, had almost disappeared by 1916, and has varied little since. The authors ask, "Are we seeing cases of dengue and diagnosing them as influenza?" Fifth comes typhoid, with fatality ranging from 23–32 per cent. It is transmitted in Manila by personal contact and possibly by flies. Malaria is next on the list, and after ankylostomiasis and acute bronchitis we come to broncho-pneumonia. Tenth and next comes syphilis with 2·88 per cent. of cases. The authors believe this percentage to be too high and state that up to 1914 all positive Wassermanns were diagnosed as syphilis, to the neglect of yaws; syphilis, they say, should come 22nd. They note that out of 38 cases of tabes dorsalis 26 occurred in Filipinos, 10 in Americans and 2 in Chinese; and among 6 cases of general paralysis 4 were Filipinos. "Unfortunately we are without figures of the respective hospital admissions for all diseases." Eleventh in the list comes chronic nephritis "which seems to us too high," and 12th lobar pneumonia, 2·27 per cent. Skipping over gastritis, acute nephritis, secondary anaemia, polyneuritis, cholecystitis, cystitis, mitral insufficiency, gonorrhoea, rheumatic fever, dengue, impetigo, we come to dry beriberi: if polyneuritis is added to all the beriberi cases the disease would come 11th in the series. There seems no tendency for this disease to decline. The 26th place is occupied by bacillary dysentery: towards the end of 1918 the number of cases increased greatly; the authors suggest this may have been a gastro-intestinal form of influenza.

A. G. B.

Mendelson (Ralph W.). **The Immediate Effect on the Liver Temperature as a Result of lowering the Intragastric Temperature with Ice-Water.** *Jl. Trop. Med. & Hyg.* 1927. Mar 1. Vol. 30. No. 5. pp. 64–67. With 6 charts in text.

As a result of experiments on dogs designed to throw light on affectation of the liver in man in hot climates and in which the stomach was filled with ice-water and the temperatures in the liver and neighbouring

sites were read on thermometers introduced through skin incisions, it is concluded that the temperature of the liver is affected by lowering the intragastric temperature; the fall is about 2°C. Controls are not mentioned.

Greene & Rowntree found that a decrease in body temperature is produced in dogs by the forced administration of excessive amounts of water even though the water is given at a temperature equal to or slightly above that of the body. (*Am. Jl. Physiology.* 1927. Vol. 80. p. 230.)]

A. G. B.

Magath (Thomas B.) & Sheard (Charles). **Spectrophotometric Analysis of Blood Serum in Normal and Pathologic Conditions. Study I.**—*Arch. Intern. Med.* 1927. Feb. 15. Vol. 39. No. 2. pp. 214–225. With 6 text figs. [21 refs.]

The authors' observations on the yellow pigment of the blood-serum lead them to the conclusion that it is bilirubin. This is so for normal people, as well as for those suffering from malaria, pernicious anaemia, haemolytic jaundice and jaundice due to obstruction. The degree of bilirubinaemia varies, but in the order named the relative amounts are indicated. No evidence is afforded by spectrophotometry that the bilirubins are different. Usually one hour after transfusion in pernicious anaemia the serum shows a rise of bilirubin. Any process leading to too rapid destruction of blood or too slow secretion of bile results in bilirubin retention. The opinion is finally expressed that all jaundice is haemolytic. The paper contains full details of the method used including an account with diagrams of the spectrophotometer employed (that of Keuffel and Esser).

W. D. Halliburton.

Bais (W. J.) & Verhoef (A. W.). Anthropologisch bloedonderzoek bij verschillende rassen in Nederlandsch-Indië. [**Anthropological Blood Examination among Various Races in the Malay Archipelago.**] —*Geneesk. Tijdschr. v. Nederl.-Indië.* 1927. Vol. 67. No. 1. pp. 7–11. [4 refs.]

The investigation was carried out in Medan (Sumatra). The groups are arranged in accordance with Jansky's scheme. The blood was examined of 1,346 Javanese, 546 Sumatrans, 592 Southern Chinese, 348 Tamils (Klinghalese). The results are as follows :—

Among the :	Belonged to Jansky's Group.			
	I. Per cent.	II. Per cent.	III. Per cent.	IV. Per cent.
Javanese	39·9	25·7	29·0	5·4
Sumatrans	43·7	23·0	29·0	4·3
Chinese	40·2	25·0	27·6	7·2
Tamils	37·9	23·0	31·6	7·5

The biochemical blood-index of the HIRSCHFELD's, to be derived from these figures, is :—

For the	Javanese	0·9
,,	,, Sumatrans	0·82
,,	,, Chinese	0·92
,,	,, Tamils	0·78

The index of the Tamils is higher than that found by the HIRSCHFELDS among the Indian soldiers in the Balkans (0·56) and that among the Southern Chinese is likewise higher than that found by LIU and WANG among Northern Chinese (0·82).

N. H. Swellengrebel.

HEINEMANN (H.). Enkele opmerkingen omtrent vergelijkende Physiologie en vergelijkende Pathologie. [**Some Remarks on Comparative Physiology and Comparative Pathology.**] *Geneesk. Tijdschr. v. Nederl.-Indië.* 1927. Vol. 67. No. 1. pp. 36–42. [Refs. in footnotes.]

This is a plea for the study of the sciences mentioned in the title, difficult to summarize.

The difference between pathology in Europe and in the East lies not so much in the occurrence of real tropical diseases as in peculiarities in symptomatology, occurrence and significance from a public health point of view, which the ubiquitous diseases show in the tropics.

The possible relation is discussed of the absence (at least rarity) of metasyphilitic affections, diabetes and amyloidosis in Javanese labourers with physiologic influences of the tropical climate. Of course much of the argument produced is of a speculative character.

The equilibrium between the antagonistic systems calcium-adrenalin-sympathetic on one hand and potassium-insulin-vagus on the other may be interfered with by physical influences, e.g., the tropical sunshine, the physiologic action of which on the carbon dioxide tension of the alveolar air was shown by RADSMA (see this *Bulletin*, Vol. 23, p. 635).

Physiological " vagotonic stigmatisation " in the native may afford protection against general paralysis in the same way as malaria acts therapeutically in this disease, which action, according to E. F. MÜLLER, is to be ascribed to vasomotor influences on the diseased tissues via the vegetative nervous system.

Pigmentation by insolation decreases the thyrosin content of the blood, which may account for the rarity of amyloidosis, thyrosin being an important component of amyloid. At the same time insolation has an influence on the adrenals and on carbohydrate metabolism, generally speaking in the sense of an increased sugar tolerance, which could explain the infrequent occurrence of diabetes. Differences between pigmented and white races in this respect may be expected and could throw more light upon the question.

W. J. Bais.

MENDELSON (Ralph W.). **Clinical Observations from the Central Hospital, Bangkok, Siam.**—*Arch. Dermat. & Syph.* 1927. Mar. Vol. 15. No. 3. pp. 298–303. With 9 text figs.

The cases briefly described with photographs are : Papillary adenomata of the sweat glands, amoebic dysentery (perforation of colon),

endothelial sarcoma of the tongue, carcinoma of the lips and cheek in a betel nut chewer, yaws and gangosa, nearly all advanced cases.

A. G. B.

Sack (Arnold). Altägyptische Mumienfunde im Lichte der Pathologie. [**The Pathology of Mummies of Ancient Egypt.**]—*Muench. Med. Woch.* 1927. Mar. 4. Vol. 74. No. 9. pp. 372–373. [18 refs.]

Amongst the numerous signs of disease found in the examination of 30,000 mummies syphilitic bone lesions were discovered in no single case, which confirms the author in his belief that syphilis is not an old world product. The only case of leprosy belongs to the early Christian period, evidence that the Zaraath of the Bible had nothing to do with true leprosy.

[Dr. Hugh J. Means,* of Columbus, Ohio, examined by X-rays 500 skeletons from one of the Ohio mounds or earthworks, made by a prehistoric people at the stone age of development. Many skeletons were fragmentary.

"Definite gross and roentgenological evidence of syphilis was found in three skeletons. They presented varying degrees of involvement, from a simple periosteal thickening and roughening on the crest of the tibia, to thickened ivory-like bone invading the medullary canal with gumma formation."

The lesions are figured. He writes: It has been clearly proven that syphilis existed and was a fairly common disease.

As far as the findings of Sack & Means go (the former does not appear to have used X-rays), they support the New World origin of syphilis.]

A. G. B.

Sitsen (A. E.). De gewichten van eenige organen bij den Maleier. [**The Weights of some Organs in the Malay.**]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1927. Vol. 67. No. 2. pp. 167-177. [7 refs.]

The author gives a table of the standard average weights of various organs in the Malay race, which may be useful for comparative purposes. The data were obtained from the post-mortems of 120 males and 9 female adult individuals, who were killed by accident or murder and free from pathological changes.

The height varied from 1·46–1·80 M., the weight from 36–61 kg., the weight per M. height from 21–37 kg., the weight of the heart from 109–196 gm. per M.height. For further details concerning lungs, spleen, liver, kidneys, pancreas, adrenals, testicles, thyroid gland, thymus, brain, and for comparison with European figures the original paper should be consulted.

W. J. Bais.

Seidelin (Harald). **Sterilization of Catgut by Means of Aniline Colours.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1926. Nov. 25. Vol. 20. No. 4. pp. 307–309. [4 refs.]

Dr. Seidelin brings to the notice of the profession a new method of sterilizing catgut for ligatures and sutures which is likely to be gratefully

* "A Roentgenological Study of the Skeletal Remains of the Prehistoric Mound Builder Indians of Ohio." *Amer. Jl. Roentgenology & Radium Therap.* 1925. Vol. 13. pp. 359–367. With 6 plates.

welcomed by surgeons practising in the tropics. It is well known that in hot countries material of this kind deteriorates with keeping much more rapidly than in temperate climates, where moreover sterilized catgut of good quality can be purchased at any time in quantities suited to the requirements of the moment. In the tropics considerable supplies have often to be maintained in store, and these may not infrequently remain unexpended for lengthy periods, with the inevitable result that, when brought into use, the material is discovered to be unserviceable, iodine catgut being found brittle and catgut preserved in alcohol becoming stiff and difficult to handle. Raw catgut on the other hand keeps well, as Dr. Seidelin notes, and an easy and reliable method of sterilizing it in any quantity, at any time, and in any place is now described. The technique involved combines the consecutive action of three powerful antiseptics: Oil of cloves, absolute alcohol, and a solution of crystal violet and brilliant green. This solution is known as "blue," being of a deep blue colour not unlike a solution of methylene blue. For details readers must be referred to the original paper, but briefly the process consists in submerging raw catgut, thoroughly dry and wound on glass spools, in oil of cloves for at least 24 hours; it should then be soaked in absolute alcohol until not the slightest smell of cloves remains, but not for more than 48 hours. The gut is finally transferred to the blue solution of one gramme each of crystal violet and brilliant green in 300 cc. of 50 per cent. alcohol, where it remains and is ready for use after 48 hours. The author has found it in perfect condition after more than two years in the solution. The thread is perfectly supple, easy to tie, and gives a tight knot, its tensile strength being unimpaired. Both clinical and laboratory tests have shown catgut thus prepared to be sterile. Staining of the hands is the only inconvenience entailed by its use, but with rubber gloves this is a drawback of no real importance. Mr. Chitty, Surgeon, Bristol Royal Infirmary, writes in September, 1926, that he has employed catgut prepared by this method for all his hospital operations for upwards of twelve months; that he has found it strong and supple; that in no case has he had a stitch abscess due to the catgut, although he has employed it in numerous septic cases; that the dye-stuff is non-irritating, and that he has used it with satisfactory results for swabbing out appendix abscesses and septic wounds.

J. J. Pratt.

Mesnil (F.). Therapeutica pelos compostos de arsenico e de antimonio. [**Therapy by Means of Compounds of Arsenic and Antimony.**]—*Rev. Med.-Cirurg. do Brasil.* 1927. Feb. Vol. 35. No. 2. pp. 29–36.

This is a paper contributed by Professor Mesnil of Paris reviewing historically and chronologically the use of arsenical and antimonial compounds in various diseases of man. He shows how the preparation of the compounds has been carried out on scientific lines and not merely in a haphazard manner, that new substances are manufactured in the chemical laboratories in series, according to previously determined formulae, that they are then tried on laboratory animals before application is attempted in human cases. He has a few words to say on the

uses of arsenic in protozoal infections—trypanosomiasis, malaria—and spirochaetes, and of antimony in trypanosomiasis, leishmaniasis and schistosomiasis.

H. Harold Scott.

Van den Branden (F.). Note sur l'emploi du stovarsol dans le traitement de quelques affections tropicales. [**Note on the Use of Stovarsol in the Treatment of Tropical Diseases.**]—*Bull. Méd. du Katanga.* 1926. May. Vol. 3. No. 2. pp. 48–51.

The author treated 27 cases with stovarsol, 13 of yaws, 8 of amoebic dysentery and 6 of trypanosomiasis.

Trypanosomiasis.—Larger doses were given than those advised in Europe. A patient of 67 kilos received in all 54 gm. in 23 days and another of 54 kilos 45 gm. in 17 days; the trypanocidal action was slow and transient.

Amoebic Dysentery.—Of the 8 cases 2 relapsed in a few days, and in 4 the amoebae did not disappear from the stools; 3 of these were resistant to emetine. Two seemed to have benefited. The author suggests the association of stovarsol and emetine.

Yaws.—The author gives 1 gm., 1·50, 2, and 3 gm. daily in the adult and 0·5, 0·75, and 1 gm. in children. In all he gives as many grammes as the patient's weight in kilos. He considers stovarsol to be the medicament of choice in the ambulatory treatment of yaws, having the great advantage for the native that it is taken by mouth.

A. G. B.

Snijders (E. P.). Eenige met stibenyl behandelde ziektegevallen. [**On a Few Cases treated with Stibenyl.**]—*Nederl. Tijdschr. v. Geneesk.* 1926. 70th Year. 2nd Half. No. 25. 4 pp. With 5 text figs.

The drawbacks of tartar emetic (difficulty in obtaining the chemically pure drug, necessity of intravenous administration, relatively small difference between therapeutic and toxic doses and by-effects) can be avoided by the use of stibenyl, a stable preparation, the toxicity of which is only 1-10 that of tartar emetic.

Snijders reports upon 3 cases which (with Schüffner) he treated with this drug: (1) A case of oriental sore, which healed under treatment with injections of stibenyl (4·6 gm. in 5 weeks); (2) a case of filariasis, in which 2 gm. had no effect upon the disease; (3) a doubtful case of Hodgkin's disease in which stibenyl, substituted for arsenicals, which apparently were indicated, 3 gm. in 1 month, followed by a similar course after 6 weeks, produced clinical cure of the disease.

W. J. Bais.

Acton (Hugh W.). **Principles in the Testing of a Cure.**—*Indian Med. Gaz.* 1926. June. Vol. 61. No. 6. pp. 271–278. With 2 text figs. & 2 charts in text. [10 refs.]

"1. Cures may be of two kinds, permanent or temporary. In the latter condition, the causative agent of the disease is still present, but not in sufficient numbers to give rise to symptoms.

"2. Permanent cures may occur with complete recovery of the tissues, or may be incomplete with impairment or loss of function.

"3. In every test of a cure, the data of composition of the population tested should always be given as regards its important aetiological factors such as age, habits and customs, etc., since these factors may profoundly influence the course of the disease.

"4. The two populations compared, those under test and the controls, should be similar in every respect; e.g., with regard to numbers, homogeneousness, etc.

"5. The percentage mortality or cure rate is obtained by observations on 100 individuals; not by elevating observations on digits into percentages.

"6. A homogeneous population under test can only be secured by avoiding bias, and paying attention to the law of chance sampling.

"7. The testing and control experiments should be carried out under identical conditions in order to avoid obtaining the results of only partial correlations. Also tests for a cure should if possible be carried out in non-infective areas, with regard to protozoal diseases, especially, in order to exclude the chances of re-infection.

"8. Only differences between the two groups of a significant order should be considered; e.g., those outside the range of chance sampling, or partial correlation.

"9. The permanency of a cure can only be tested by time, the continued well-being of the patients, and the effect of the introduction of the cure on the mortality rate for a given disease in the general population.

"10. In cases of rare diseases, where large numbers of observations are not possible, one has to rely on diseases which show chronicity before treatment, large mortality rate, and the rapid disappearance or arrest of the diseases when under treatment.

"11. The relative value of a modification of treatment, e.g., of the comparative value of the dry cord method and the dilution method of Hoghyes in anti-rabic treatment, or of the different pentavalent compounds of antimony in the treatment of kala-azar, can only be tested on a large scale. Consideration must also be paid to the relative toxicity to the body of the different compounds used, apart from their therapeutic value."

The above are the author's summary and conclusions. The main contention of the paper is that too often, in assessing the value of any line of treatment, the groups compared—the treated and the controls—are not strictly comparable at all. With regard to snake-bite, the author instances the common error of including in a group all the treated and cured irrespective of lack of knowledge of the dose of venom received, and comparing this with a group which includes all those so severely bitten as not to survive until treatment was possible.

In the case of rabies it is pointed out that a falling annual percentage mortality, among those receiving Pasteur treatment in India, probably means nothing, for each year an increasing number of people apply for treatment who are not really at risk at all, having either been bitten by a non-rabid animal or not effectively bitten by any animal.

Other inexpert manipulations of statistics by medical men are touched on.

The treatment of amoebic liver abscess by emetine is instanced as a cure which is undoubtedly efficacious. In graphs purporting to demonstrate the good effects of emetine, the doubtfully beneficial results following antirabic treatment, and the employment of anti-venene, Major Acton falls into one of the pitfalls against which he warns his readers. He uses the total annual deaths from 1890 to 1924 in "the British Army and families, Indian Army and Jails," as an index of the efficacy or otherwise of treatment, without regard to the variation (probably considerable in that period) of the number and other circumstances of the lives at risk. Contrary to what is said

on p. 276, Chart I does not tell anything of *the mortality rate* attributable to liver abscess ; it deals solely with total mortality from that disease over 34 years among an unstated population, variable as to number, character and other circumstances.]

J. F. C. H.

FRANKENBERGER (Charles). **Medical Periodicals from the Library Standpoint.**—*Jl. Amer. Med. Assoc.* 1926. Aug. 21. Vol. 87. No. 8. pp. 612–614.

The author, as a Librarian, puts the case for greater uniformity and standardization in medical periodical publications. Those responsible for the publication of journals are asked to give short titles to their periodicals so as to economize space in bibliographies and catalogues and cost in lettering on bound volumes ; to avoid a change of title in the course of a volume ; to print on the front cover and on the first page of text of each issue the volume, number or part, year, month, and if issued more often than monthly the day of month ; to use a single continuous pagination throughout a volume ; to issue a title-page and index to each volume ; to keep supplements the same size as the parent journal if intended for binding up with the main volume ; to give definite notice of suspension or discontinuance of publication, or of mergence with another publication ; and to indicate clearly the number of the series, as " 2nd Series," " 3rd Series," if a new series of an existing publication is started.

The author would have each volume begin and end in the calendar year, the first part of each volume numbered 1. He prefers the use of Arabic to Roman numbering in bibliographies, indexes, and references. In his opinion some standardization in the arrangement of running titles is desirable ; he commends in this connexion the style, adopted in the American Medical Association's publications, of giving the title of journal at the top of each left-hand page, and the author's name and a short title of article at the top of each right-hand page. The problem of library shelving and filing would be much simplified also if there were some standardization of sizes—at present medical journals vary in size from that of a postcard to that of a daily newspaper.

The practice of continuing the reading matter on to advertisement pages is condemned ; as also that of splitting up a periodical under one main title into several sub-divisions such as " Originale," " Referate," with in some cases a different sub-title also. Each periodical, in the author's opinion, should appear as a unit in itself under its own distinctive title and volume and issue number.

Several periodicals, representative of the larger group in which are found some of the variations or defects referred to, are named in the hope that his article may come to the notice of those able to effect some improvements in these matters.

[One would suggest also the advantage of printing on the front cover of a periodical a note of the inclusive pagination of the number and an indication of where the contents-page or pages will be found. If also publishers would instruct their printers to trim the heads and fore-edges and tails of journals before issue much time with a paper knife would be saved to readers and to library staffs.]

R. L. S.

Mengert-Presser (H.) & Donath (W. F.). Ueber Haemoglobin- und Eisenbestimmungen im Blut der in den Tropen lebenden Menschen. [**Haemoglobin and Iron Content of Blood of Men resident in the Tropics.** —*Far Eastern Assoc. Trop. Med. Trans. Sixth Biennial Congress, Tokyo, 1925.* Vol. 1. pp. 537–589. With 18 figs. [39 refs.]

The haemoglobin and iron content of the blood of men residing in the tropics was investigated by means of the methods of Sahli and Lapique respectively. This work was republished in *Meded. Dienst. d. Volksgezondheid in Nederl.-Indië*, 1926, Pt. 3. pp. 240–277 and was reviewed in this *Bulletin*, 1927, pp. 490–492, to which reference should be made.

H. E. Whittingham.

Mazza (Salvador). Recuerdos médicos y otros recuerdos de Argelia y Túnez. Notas de viaje. Primera parte—notas de Túnez. [**Medical and other Mementos of Argelia and Tunis.**] *Rev. d. Circulo Med. Argentino y Centro Estudiantes de Medicina.* 1925. Nos. 285, 286 & 292. 71 pp. With 31 figs. 1926. Buenos Aires.

This is the first part of an account of the author's tour, namely, that dealing with Tunis. Nearly the whole is taken up with a panegyric on the work of the Pasteur Institute there, the author acting as Boswell to Nicolle's Johnson. He writes chattily also on points of local interest and of the local superstitions, but nothing of true scientific importance is treated in detail and all the subjects mentioned will doubtless appear (such as have not already done so) in the official reports of the Institute.

H. Harold Scott.

Gabbi (Umberto). Per una Scuola di Patologia clinica ed Igiene Coloniale in Italia. [**Need for a School of Clinical Pathology and Colonial Hygiene in Italy.**]—*Giorn. di Clin. Med.* 1927. Feb. 28. Vol. 8. No. 3. pp. 107–114.

General remarks on the advantages to Italy of a school for instruction in tropical problems, mentioning the subjects which should be taught and the individuals who would benefit by attending such a course.

H. Harold Scott.

Gëorg (C. Th.). Aus dem Hospital San Antonio, San Pedro de Macoris, Santo Domingo. [**From the San Antonio Hospital, Santo Domingo.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1927. Jan. Vol. 31. No. 1. pp. 41–44. With 3 text figs.

Three cases are described with photographs: (1) elephantiasis of the arm after removal of axillary lymph glands for a tumour; (2) ankylostomiasis with nanism; (3) syphilitic gumma and ulceration of leg.

A. G. B.

Melnotte (Pierre) & Farjot (Antonin). Ictère infectieux fébrile à type pseudo-palustre d'origine colibacillaire. **Febrile Infectious Jaundice of Pseudomalarial Type and Colibacillary Origin.** *Bull. et Mém. Soc. Méd. Hôpit. de Paris.* 1927. Mar. 24. Year 43. 3rd Ser. Vol. 51. No. 10. pp. 364–366. With 1 chart in text.

A case of febrile jaundice in which the temperature resembled that in benign tertian malaria. From the blood, which contained no malarial parasites, a typical *Bacillus coli* was isolated. The patient was successfully treated by oral administration of a vaccine prepared from cultures of this organism.

C. M. W.

Aben-Athar (Jayme). Iso-aglutininas do sangue dos brasileiros.—*Sciencia Med.* 1927. Mar. 31. Vol. 5. No. 3. pp. 145–153.

Choay (André). Voyage d'études en Orient.—*Rev. Prat. Malad. des Pays Chauds.* 1927. Jan. & Mar. Year 6. Vol. 7. Nos. 1 & 3. pp. 5–48; 116–124.

Chopra (R. N.). Some Aspects of Therapeutics in India.—*Indian Med. Gaz.* 1927. Mar. Vol. 62. No. 3. pp. 151–157.

Dubois (Albert). La médecine tropicale en 1926.—*Bruxelles-Méd.* 1927. Apr. 17. Vol. 7. No. 25. pp. 785–797. [130 refs.]

Forrest (Stanley). Case of Peri-Appendicular Abscess in a Muganda in Entebbe Civil Hospital.—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1927. Apr. 27. Vol. 20. No. 8. pp. 552–553.

Iyer (M. A. Krishna). Notes on Infantile Cirrhosis of the Liver.—*Indian Med. Gaz.* 1927. Mar. Vol. 62. No. 3. pp. 130–131.

Marshall (Wilfrid). A Study of Santonin Xanthopsia.—*Jl. Pharm. & Experim. Therap.* 1927. Mar. Vol. 30. No. 5. pp. 361–388. With 1 text fig. [23 refs.]

——. Santonin Excretion and its Relation to Santonin Xanthopsia.—*Jl. Pharm. & Experim. Therap.* 1927. Mar. Vol. 30. No. 5. pp. 389–405. With 9 text figs. [6 refs.]

Martinelli (Giuseppe). Relazione sanitaria dell' anno 1926.—*Arch. Ital. Sci. Med. Colon.* Tripoli. 1927. Apr. Vol. 8. No. 4. pp. 209–213.

Moteki (Kuranosuke) & Kimura (Hiroshi). On the Treatments of Elephantiasis.—*Far Eastern Assoc. Trop. Med. Trans. Sixth Biennial Congress, Tokyo, 1925.* Vol. 2. pp. 99–100.

REVIEWS AND NOTICES.

LEAGUE OF NATIONS. Health Organisation. C.H. 523. 387 pp. With numerous illustrations. 1926. Dec. Geneva. **Progress of the Science of Nutrition in Japan.** With an Introduction by Tadasu SAIKI.

This volume, published by the League of Nations under the direction of Tadasu Saiki, has already been reviewed by Professor MELLANBY in the *Bulletin of Hygiene*, v. 2, 505. Nevertheless it was thought that a more detailed account of the studies on rice might be helpful to those workers who have charge of patients in countries where rice is the chief article of diet.

There are seven chapters dealing particularly with this subject. Each chapter gives an account of one aspect of the problem and one author, with or without collaboration, is responsible for each. For convenience this method of presenting the subject will be followed.

1. Rice is the staple food of the Japanese. In its crude form it has been in use for centuries but it was only about two hundred years ago that the process of polishing was introduced. Since then this process has gradually become universal. It is of obvious importance, therefore, to determine what effect polishing has upon the digestibility and utilization of rice.

Experiments were carried out on human subjects and the method is described in some detail here as it is used in other sections of the work. Each experiment lasted thirteen days. The first three days were a preparatory period and the last two days were not strictly part of the test. The intervening period of eight days was divided into four periods of two days each, called, respectively, the " polished rice period," the " half-polished rice period," the " 70 per cent. polished rice period," and the " unpolished rice period." The rice used was third grade " Shonai," commonly used by the Japanese. Carefully measured and controlled side dishes were allowed. The urine and faeces were examined during the various periods and very thorough chemical investigations were carried out.

A second series of experiment was instituted, using not only one kind of rice, as previously, but two different kinds.

Among other results it was found that the higher the grade of polishing the greater is the digestibility and utilization of the rice. Also that the " quantity of rice eaten to supplement standard side dishes was always greater when the polishing grade of rice was higher; when unpolished rice was eaten, the consumption of side dishes was obviously small, and it appeared that the calorie intake was insufficient for the requirements of the body."

II. The second section deals with the effects of various cooking methods upon the digestibility of rice. The method of experiment was similar to that used in the previous section. It was found that " Dango " (powdered rice mixed with water, made into balls and cooked) was more digestible than ordinary boiled rice; Dango made from unpolished rice was better than boiled unpolished rice; boiled rice was better than stewed rice. Many more preparations were studied but it is impossible in a small space to describe these.

III. Variations in the protein oryzanin are responsible for the differences between glutinous and common rices and not variations in the starch as was formerly believed by many. If this be true there should be chemical and physical differences in the protein from the two varieties of rice. Experiments showed this to be the case.

IV. In different parts of Japan different varieties of rice are used for fermentation. This must depend upon the specificity of the proteins of various rices. Experiments show that there are in fact such physico-chemical differences between oryzanins derived from different sources.

V. Starches, as is well known, vary in their properties according to their origin. In rice there are two starches, common and glutinous. The former gives a blue reaction with iodine, the latter a red or purple colour. No other differences between these two starches have been described so far in the literature. This section gives an account of work making good this defect in our knowledge by showing that there are many other physico-chemical differences between these two starches besides their behaviour with iodine.

VI. This section deals with the oxidising ferments present in rice. Many interesting findings are detailed, among which are the following: the catalase activity of rice differs according to the variety of the rice and where it was grown. This activity varies with the grade of polishing and its diminution during a year's storage runs parallel with the decrease with vitamin B content of the rice.

VII. The polishing of rice, as might be expected, causes an alteration in its chemical constituents. The process slightly lessens the amount of protein, while fat, ash and fibre are greatly diminished. On physiological and economic grounds 70 per cent. polished rice (i.e., rice which still retains about 30 per cent. of the outer layer and germ) has much to recommend it. This grade contains from 0·5–0·8 per cent. of phosphorus.

This book represents an enormous amount of labour, containing as it does accounts of numerous experiments carried out with the utmost detail. The reviewer feels that he has done but scant justice to this most important contribution to the literature of this subject.

A. Douglas Bigland.

Joyeux (Ch.) [Professeur agrégé à la Faculté de Médecine de Paris, Secrétaire général de la Société de pathologie exotique de Paris, Ex-médecin de l'Assistance indigène en Afrique Occidentale]. Précis de Médecine Coloniale. [**Précis of Medicine in the Colonies.**]—831 pp. With 139 text figs. 1927. Paris VIe: Masson et Cie, Editeurs, 120 Boulevard Saint-Germain. [65 francs.]

There will be general agreement with the author that the primary condition for successful practice in hot countries is to be well trained in all the subjects of medical study. Nevertheless, there are not a few diseases which are rare outside of hot countries. It is to these that this book is devoted. In its 800 odd pages the author has set out concisely, clearly and interestingly the essential practical facts of the epidemiology, aetiology, diagnosis, treatment and prophylaxis of "tropical" diseases. Here one can make only one criticism—that in some diseases methods of treatment now well known to German and English workers receive little or no mention. However, it is true, no treatment is as yet fixed. The author wisely takes it for granted that the practitioner has no laboratory service at his near disposal and, rightly, that he is equipped with microscope and knowledge how to use it. [Indeed, medical practice in the tropics without microscopy is really more, and worse than, foolhardy practice.] The pure parasitology of tropical diseases therefore is given but brief, yet accurate, exposition. Only those world-wide diseases presenting some apparent peculiarities in their evolution in the tropics are dealt with, and the book ends [should it not begin ?] with a chapter on sea sickness. The book is well printed, aptly illustrated and well indexed and contains a useful, up-to-date, and not forbiddingly large bibliography.

H. M. Hanschell.

Brooke (Gilbert E.) [M.A.Cantab., L.R.C.P.Edin., D.P.H., F.R.G.S., Chief Health Officer, Singapore, etc.]. **Aids to Tropical Medicine.** Third Edition Revised.—pp. x + 228. With 30 figs. and frontispiece of 7 figs. 1927. London: Baillière, Tindall & Cox, 7 & 8, Henrietta Street, Covent Garden, W.C.2. [4s. 6d.]

This book is not, and the author says so, in any way a text book. It is meant to be "a . . . notebook, in which a concise and up-to-date summary of the chief points may be found." Such a book would have its uses if only for revision before examination. This edition, the third, does not, however, quite fulfil the author's purpose. In some particulars it is out of date. For example, one may note that there is no mention of bismuth in framboesia therapy; nor of the diagnostically useful because characteristic differences in the cellular exudates of the bowel in bacillary and amoebic dysentery; for liver abscess resection of rib, or as alternative the technique of Manson's trocar, is recommended. But there must always be some difference of opinion about the chiefness of points. Many of the text figures are informative only in the most elementary sense.

H. M. Hanschell.

Medical Zoology (Correspondence).

Falleroni (Domenico). **Fauna anofelica italiana e suo "habitat" (paludi, risaie, canali). Metodi di lotta contro la malaria.**—*Riv. di Malariologia.* 1926. Sept.–Dec. Vol. 5. No. 5–6. pp. 553–593.

——. **Note sulla biologia dell'** "*Anopheles maculipennis.*"—*Ibid.* July–Aug. No. 4. pp. 353–380.

"In two abstracts of my papers, as reported in your issue of June, No. 6, pp. 424 and 426, is said that my work does not contain anything new. As it regards the first paper, may I call your attention to some of the experiments that I have carried out and which I believe are entirely new; that is: the mutilation of various parts of the mouth apparatus of the mosquitoes, the suction through segments of mice bowels, full of sugar liquids, the suction through the skin, under which I had previously injected sugar solutions.

"Likewise some of the observations contained in my paper are new; that is: that the liquid sucked by the mosquito through the puncture process passes at once to the stomach; on the contrary, the sugar solutions, the fruit juices, unmixed liquids, when sucked through the aspiration process, pass at first into the diverticula. The two different suction processes have a different physiological significance; they are in fact correlative to the different use of the liquids sucked by the anopheles, and also exclude the possibility (as Grassi feared) of a direct transmission of malaria. This mode of transmission can be also excluded following my observation that the crop contents (gases, blastomycetes and their enzymes) are not introduced by the mosquito into the wound during the first stage of suction. This is in opposition to Schaudinn's opinion.

"I have also observed that anopheles bite for sucking blood only and do not bite fruits; that the oesophageal diverticula are not food reservoirs (in opposition to opinion of various authors, as Nuttall and Shipley, Patton and Cragg, Genna, Grassi, Rees Wright); that blood passes at once into the stomach of the anopheles even when this blood is sucked during the digestion process or when the ovaries full of ripe eggs exercise a pressure upon the stomach (in opposition to what James believes); that the rest of the reproductive activities during winter does not depend on a

cyclical intoxication from an insufficient renal function (as ROUBAUD believes); in fact, these reproductive activities can be restored in that season by heat; that the acidity of the fruit juices does not modify the reaction of the stomach, because these juices pass into the diverticula; therefore the development of the parasites cannot be prevented; if the juices pass in small parts into the stomach, they are neutralized by the reaction of this organ, which is alkaline, etc.

"In the other paper I have distinguished three kinds of the eggs of the *Anopheles claviger* (*maculipennis*) and stated that they are correlative to morphological and biological differences of the winged insect. In my opinion this is sufficient to justify the differentiation of at least two subspecies, which I have named var. *messeae* and *labranchiae*. Since then, A. de BUCK, B. SCHOUTE and N. H. SWELLENGREBEL in Holland have also distinguished two types of that species. Furthermore, I have stated that the absence of the air chambers in the eggs of the *A. elutus*, a characteristic described by EDWARDS as distinctive of this species (1921), is not constant; on the contrary, inconstant, the gray incrustation, uniform in colour, without speckling or black spots of the eggs, a character which I for the first have noted.

"In this paper I stated that the anopheline fauna of the rice fields can be identified with that of marshes, and ascertained that the differences of the sanitary condition of the various rice districts depends on the protective action of the stabled domestic animals, action which I believe the simplest, most efficacious and practical means for fighting malaria."

D. Falleroni.

Colonel Alcock, the writer of the abstracts in question, has no comment to make on Dr. Falleroni's letter [Ed.].

NOTICE.

We have received a copy of Messrs. Baird and Tatlock's Standard Catalogue of Scientific Apparatus, 1927; Vol. III, Biological Sciences. This is a profusely illustrated bound volume of some 500 pages, dealing with Anatomy and Embryology, Biology, Microscopy and Histology, Bacteriology and Protozoology, Pathology, Hygiene and Agriculture, and is arranged for ready reference to each of these subjects. Turning to Section 4, Bacteriology and Protozoology, we find listed autoclaves, sterilizers, incubators, inspissators, vaccine baths, centrifuges, etc., and here are to be found the apparatus of glassware, media, sterilization, cultivation, staining and the like. The catalogue is fully indexed.